



Missouri Primary Care Needs Assessment (PCNA)

2020

Missouri Department of Health and Senior Services

Office of Rural Health and Primary Care

ORHPCinfo@health.mo.gov

www.health.mo.gov/living/families/primarycare/

<https://health.mo.gov/living/families/primarycare/publications.php>



Thank You,

Missouri Department of Health & Senior Services staff who contributed to this report:

Office of Rural Health and Primary Care

Sara Davenport, Chief

Laura Hart, Primary Care Office Manager

Aleesha Jones, Primary Care Office Grant Manager

Sandy Srivastava, Associate Research/Data Analyst

Office of Health Care Analysis and Data Dissemination

Andrew Hunter, Chief

Haley Stuckmeyer, Associate Research/Data Analyst

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Executive Summary

Health Resources and Services Administration (HRSA) was created in 1982 and subsequently began working with state and territorial officials to improve access to quality health care services. This collaboration resulted in HRSA awarding grants to state and territorial governments to fund their state Primary Care Office (PCO).¹ HRSA continues to collaborate with states to complete a Primary Care Needs Assessment (PCNA), every five years.

The PCNA is a methodical technique used to identify unmet health and healthcare needs in Missouri and thus recommends changes to meet those unmet needs. The Missouri Statewide PCNA 2020 analyzes Missouri's unmet needs, lack of access to health care services, and evaluates resources and services necessary to overcome disparities in Missouri.

The Missouri Department of Health and Senior Services (DHSS), Office of Rural Health and Primary Care (ORHPC), Primary Care Office (PCO) conducted a Missouri Statewide PCNA 2020 to identify communities with the greatest unmet health care needs, disparities, and health workforce shortages, and the key barriers to accessing primary health care services.

The Missouri PCNA 2020 examines 33 primary care health indicators subdivided into two groups:

- ◆ 18 Health Status Indicators examine the current state of health in Missouri by incorporating the following indicators:
 - ◆ General population health, such as life expectancy and years of potential life lost;
 - ◆ Health-promoting practices, such as breastfeeding;
 - ◆ Prevalence of several notable diseases/health conditions; and
 - ◆ Mortality rates for the total population, infants, and several leading causes of death.
- ◆ 15 Health Care Access Indicators examine Missouri residents' access to various health care services by considering the following indicators:
 - ◆ Socioeconomic factors, such as poverty and lack of health insurance;
 - ◆ Measures that may indicate a lack of access to preventive health care services, such as dental-related emergency room (ER) visits and low birth weight;
 - ◆ Usage of various types of health screenings; and
 - ◆ Availability of several types of health care providers.

The health status and health access indicators explore factors influencing the current state of Missourians' health and barriers associated with accessing primary health care services in Missouri. The health status and health care access indicators also provide information about the relative health of each Missouri County. The PCO utilized the health indicators to identify where additional and necessary health resources are needed most to meet the health care needs for underserved and high-risk populations.

Summary of Findings

The Missouri PCNA 2020 report key findings include:

- ◆ HRSA has designated most of Missouri as a Primary Care Health Professional Shortage Area (HPSA) in medical, dental, and mental health disciplines.
- ◆ Rural counties were consistently identified as the counties ranked with the greatest unmet needs in all but one health indicator.
 - ◆ The HIV/AIDS health indicator demonstrated that urban counties were ranked with the greatest unmet needs but comparatively four of the ten counties were rural.
- ◆ The southeastern region of the state, which is predominantly rural, was identified as having a greater instance of unmet needs, as compared to all other Missouri regions.
- ◆ Based on the analysis of health indicators, the areas with greatest unmet health needs identified were primarily clustered in the southern part of Missouri, particularly in the southeast and south central areas.
- ◆ Moreover, 22 of the 23 Missouri counties with the greatest unmet health care needs were located south of the Missouri River.
 - ◆ Only one county (Linn) was located north of the Missouri River, in the northeastern region, as shown in Figure 1 and Figure 2 below.
 - ◆ Furthermore, this is consistent with the findings of the 2015 Missouri PCNA,² demonstrating nominal changes since 2015.
- ◆ Refer to [Appendix B](#) for a comprehensive list of counties in *rank order*, associated with greatest unmet needs overall.
 - ◆ For *alphabetical order*, refer to [Appendix C](#).
- ◆ Figure 1 provides a list of the 23 counties that demonstrate the greatest overall unmet needs.
- ◆ Figure 2 illustrates the Missouri counties with the greatest overall unmet health care needs.

Figure 1: Counties with the Greatest Unmet Needs Overall

County	Health Status Rank	Health Care Access Rank	Combined Rank Score	Overall Primary Care Needs Rank	BRFSS Region
Pemiscot	115	109	224	115	Southeastern Region
Iron	114	109	223	114	Southeastern Region
Ripley	104	115	219	113	Southeastern Region
Dunklin	113	99	212	112	Southeastern Region
Mississippi	110	99	209	111	Southeastern Region
Oregon	94	114	208	110	Southeastern Region
Wayne	98	109	207	109	Southeastern Region
Wright	97	107	204	108	Southeastern Region
New Madrid	110	93	203	107	Southeastern Region
Reynolds	101	99	200	106	Southeastern Region

Carter	101	98	199	105	Southeastern Region
Dent	91	107	198	103	Central Region
Shannon	89	109	198	103	Southeastern Region
Washington	108	89	197	102	Central Region
McDonald	91	99	190	100	Southwestern Region
Stoddard	109	81	190	100	Southeastern Region
Benton	94	93	187	98	Southwestern Region
Butler	112	75	187	98	Southeastern Region
Texas	85	99	184	97	Southeastern Region
St. Clair	85	97	182	96	Southwestern Region
Linn	104	75	179	94	Northeastern Region
Madison	98	81	179	94	Southeastern Region
Morgan	79	96	175	93	Central Region

Figure 2: Areas with Greatest Overall Unmet Health Care Needs – County Map

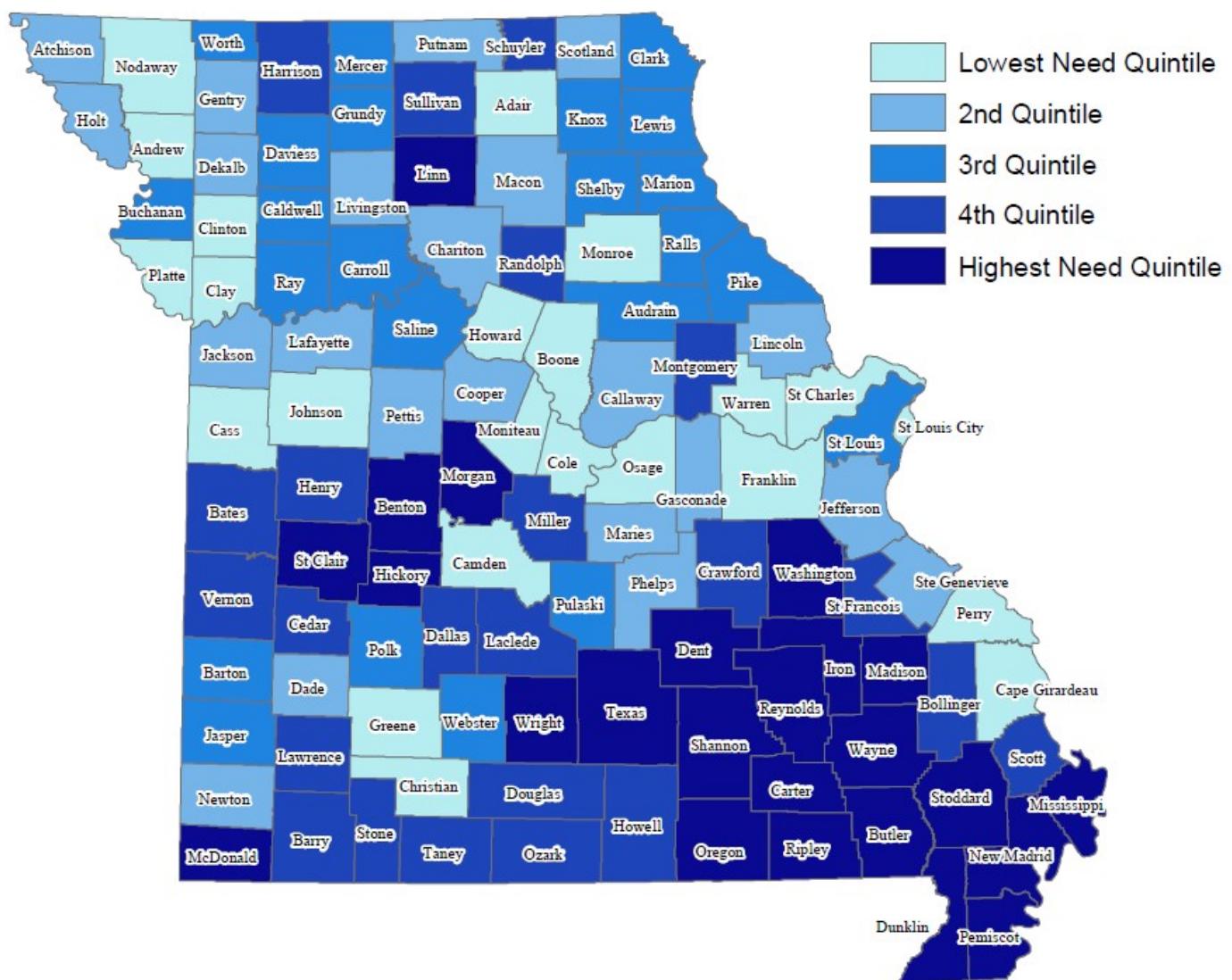


Figure 3 and Figure 4 demonstrate the Missouri counties with the greatest need for improvement in the health status indicators.

Figure 3: Table of Counties with Greatest Unmet Need – Health Status Indicators – Top Quintile

County	Health Status Rank
Pemiscot	115
Iron	114
Dunklin	113
Butler	112
Mississippi, New Madrid	110
Stoddard	109
Washington	108
Ripley, Linn, Laclede, Henry	104
St. Francois	103
Reynolds, Carter	101
Wayne, Madison, Scott	98
Wright	97
Oregon, Benton, Randolph	94
Buchanan	93

Figure 4: Health Status Indicators: Areas with Greatest Unmet Health Care Needs - County Map

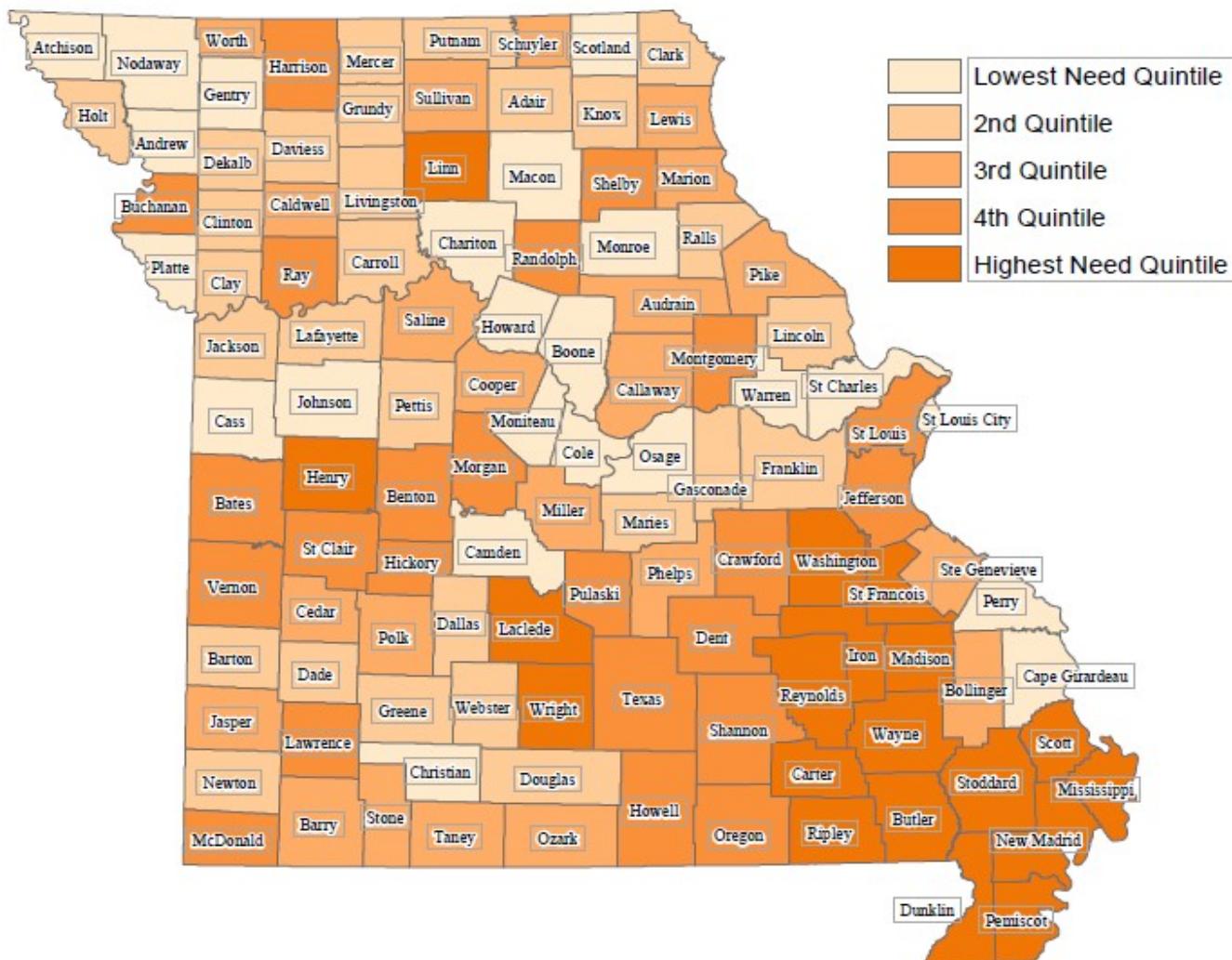
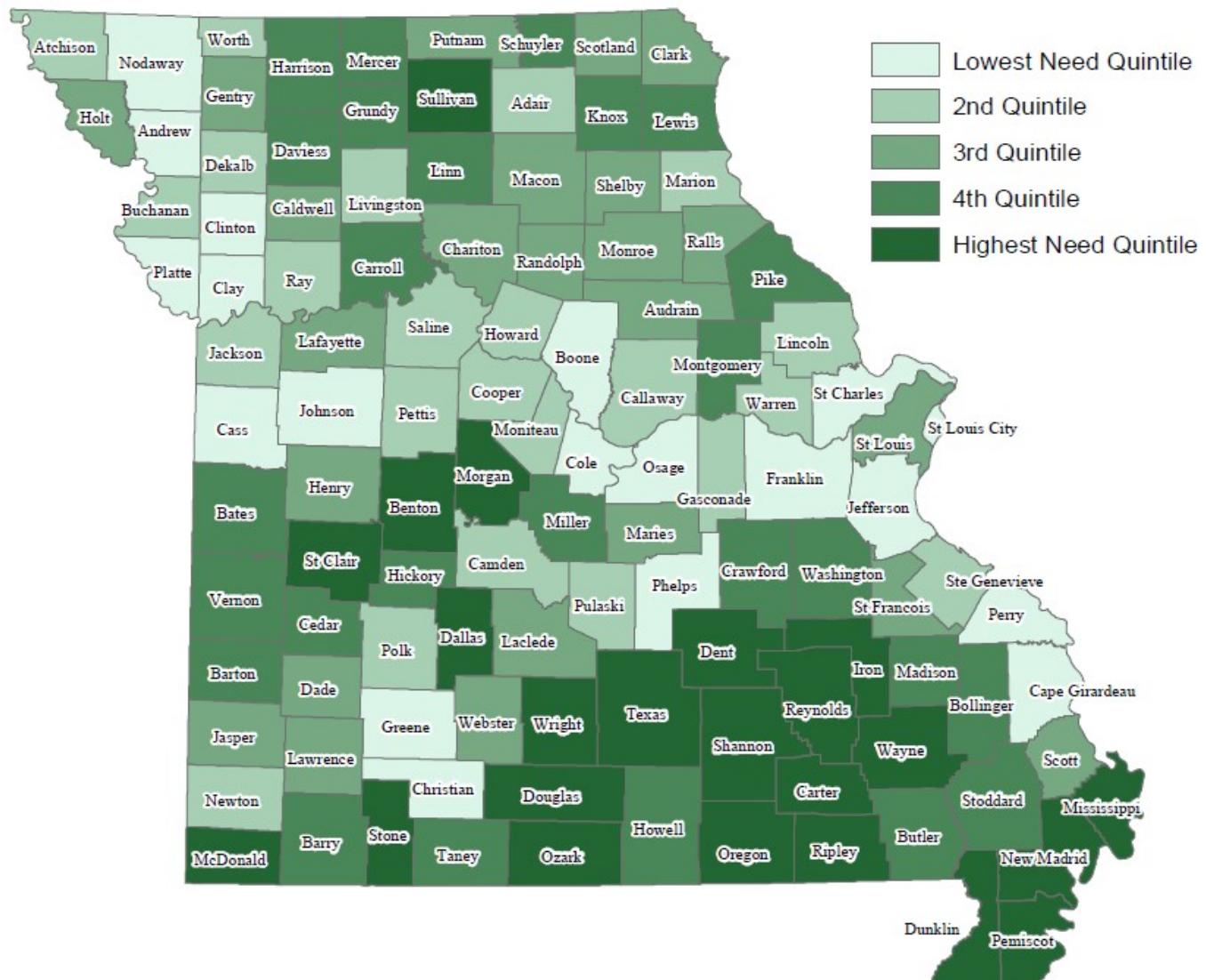


Figure 5 and Figure 6 demonstrate the greatest challenges with health care access.

Figure 5: Table of Counties with Greatest Unmet Need – Health Access Indicators – Top Quintile

County	Health Care Access Rank
Ripley	115
Oregon	114
Pemiscot, Iron, Wayne, Shannon, Ozark	109
Wright, Dent	107
Douglas	106
Dunklin, Mississippi, Reynolds, McDonald, Texas, Sullivan, Dallas	99
Carter	98
St. Clair	97
Morgan	96
New Madrid, Benton, Stone	93

Figure 6: Health Status Indicators: Areas with Greatest Unmet Health Care Needs - County Map



Introduction

Purpose of the Primary Care Needs Assessment

The Missouri PCNA 2020 identified areas exhibiting the greatest unmet health care needs, disparities, and health workforce shortages within Missouri. The health disparities discussed in the PCNA demonstrate the differences which analytically and harmfully impact the Missouri populations and counties. The PCNA also identified the key barriers experienced by those communities in accessing health care services. Additionally, serving as a guide for public health officials and other stakeholders, the PCNA is a valuable tool utilized to determine where appropriate and crucial resources are needed most.

Accessible primary health care services are so significantly salient that the importance cannot be over-emphasized. “Primary health care has been proven to be a highly effective and efficient way to address the main causes and risks of poor health and well-being today, as well as handling the emerging challenges that threaten health and well-being tomorrow.”³

During the provision of primary health care services, the first signs of depression, cancer, and chronic disease are often identified.⁴ Primary health care resources are key elements in the maintenance of health and the prevention and treatment of disease. Additionally, a population’s overall health serves to positively affect an area’s economic growth.⁵ Primary health care services are vital to the health of Missourians in identifying medical and mental health care needs for further evaluation and treatment.

Missouri continues to experience a massive shortage of primary care providers. Additionally, Missouri’s vast rural areas are burdened by greater distances to providers and limitations associated with technologic access to providers, including telehealth services. Missouri continues to face challenges in distance standards, transportation, health insurance coverage, health literacy, workforce shortages, and health behaviors.

In rural areas, access is compounded by hospital closures and unit closures, transportation and economic barriers all within the changing environment of Missouri. This places much hindrance on health outcomes and resources available to underserved areas. Access to timely, high-quality primary care services is necessary for obtaining and maintaining improved health across Missourians’ life spans.

The State of Missouri

Population

Missouri is a predominantly rural state (86%) located in the Midwest region of the United States (U.S.). Missouri is comprised of 115 counties, including, St. Louis City, an independent city which functions as a county. Of the 115 counties, 16 are classified as urban and 99 are classified as rural.⁶ A county is considered rural if there are fewer than 150 people per square mile. Additionally, a county must not contain parts of a central city in a Metropolitan Statistical Area (MSA) to be considered rural.

Of the more than 6.1 million Missouri residents, 2.07 million, or approximately 34%, live in rural areas. According to the *Health in Rural Missouri Biennial Report 2018-2019*⁶, from 2007-2017, rural areas overall have experienced less than (<) 1% population increase (urban population increased by 5.5% during the same time period). Additionally, 16 rural counties had population

losses of greater than ($>$) 5%. Five rural counties experienced population growth of $\geq 8\%$. These counties were adjacent to urban counties. Of the 99 total rural Missouri counties, 64 (65%) experienced population decline. Statewide, 16 rural counties had a $>5\%$ decline in population.

According to the HRSA Shortage Designation Management System (SDMS), Missouri has a total of 7,323 primary care, mental health, and dental health providers, of which 1,645 (22%) practice in rural counties. Even though 34% of Missouri's total population lives in rural areas, only 22% of available healthcare providers deliver services to rural Missourians. More providers practice in urban areas, as compared to rural, of which 78% provide services to the 66% urban residents. This deficit and difference further demonstrates and necessitates programs and recruitment and retention efforts to increase the number of providers practicing in rural areas.

Figure 7: Rural/Urban County Classification Map, Missouri, 2020.

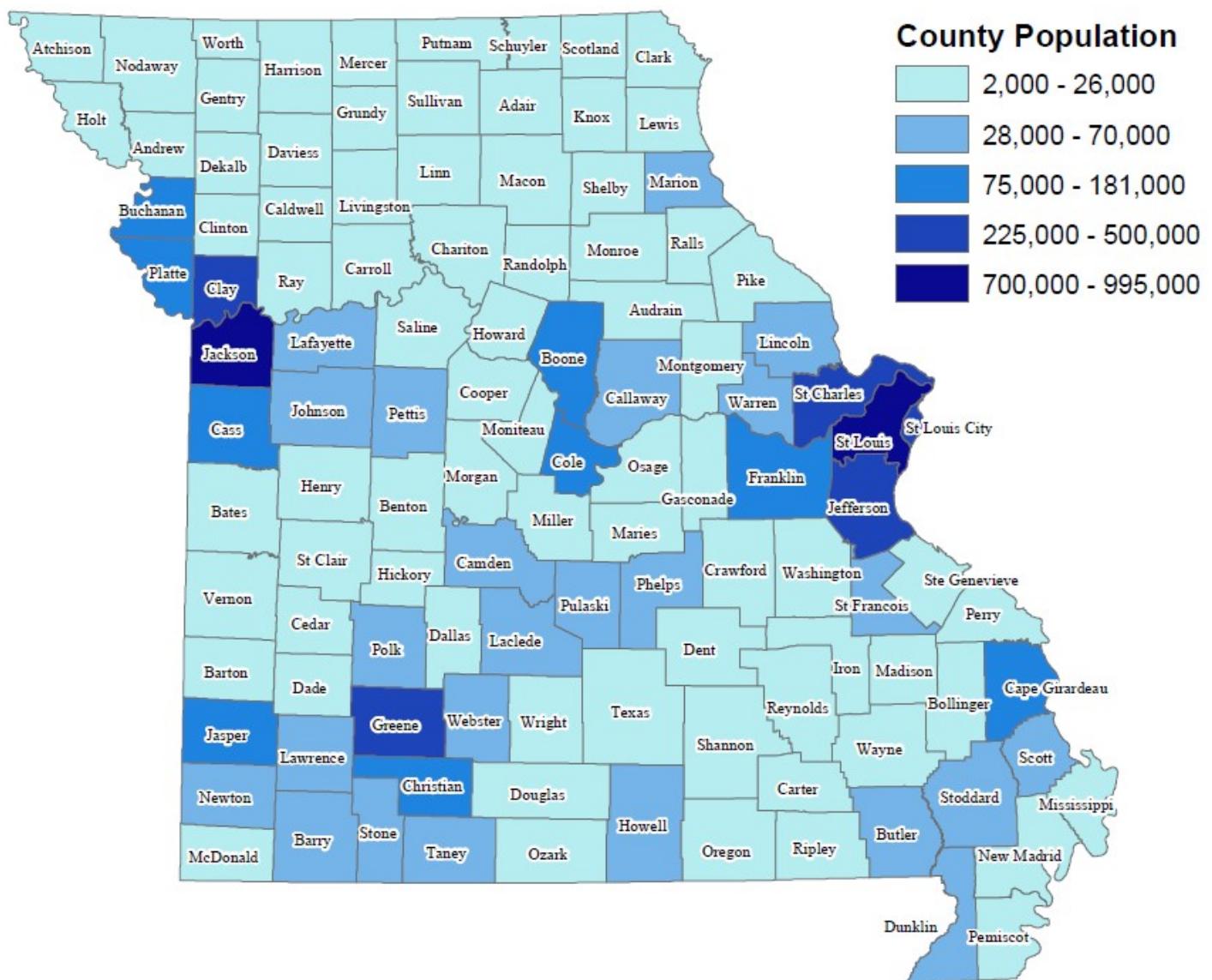


Source: United States Census Bureau, Small Area Health Insurance Estimates. <https://www.census.gov/programs-surveys/sahie.html>.

Population Highlights – Population Distribution:

- ◆ 5 of the most populous urban counties in Missouri are St. Louis, Jackson, St. Louis City, St. Charles, and Greene.⁷
- ◆ 26 Missouri rural counties have a population of $< 10,000$.⁷
- ◆ 6 Missouri rural counties have a population of $< 5,000$.⁷

Figure 8: County Population Distribution Map

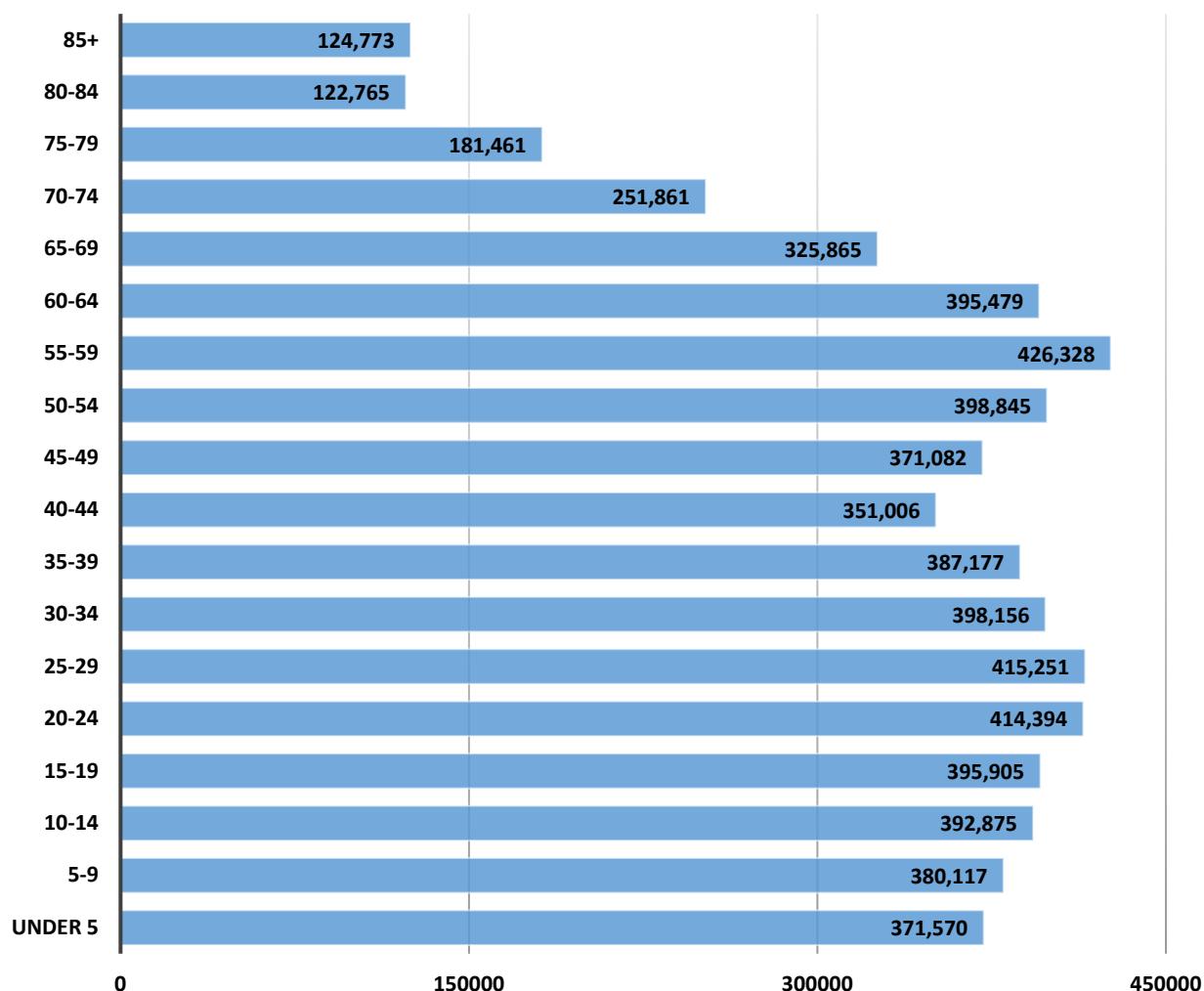


Source: Missouri Department of Health and Senior Services, Bureau of Health Care Analysis and Data Dissemination.

Population Age Groups

Figure 9: Missouri Total Population by Age Group

Missouri Total Population by Age Group



Source: United States Census Bureau, 2019: American Community Survey 5-Year Estimate

- ♦ In 2019, the largest (5-year) age group in rural areas was the 55-59 year olds, as compared to the largest age group for the urban population, 25-29 year olds.^{6,8}

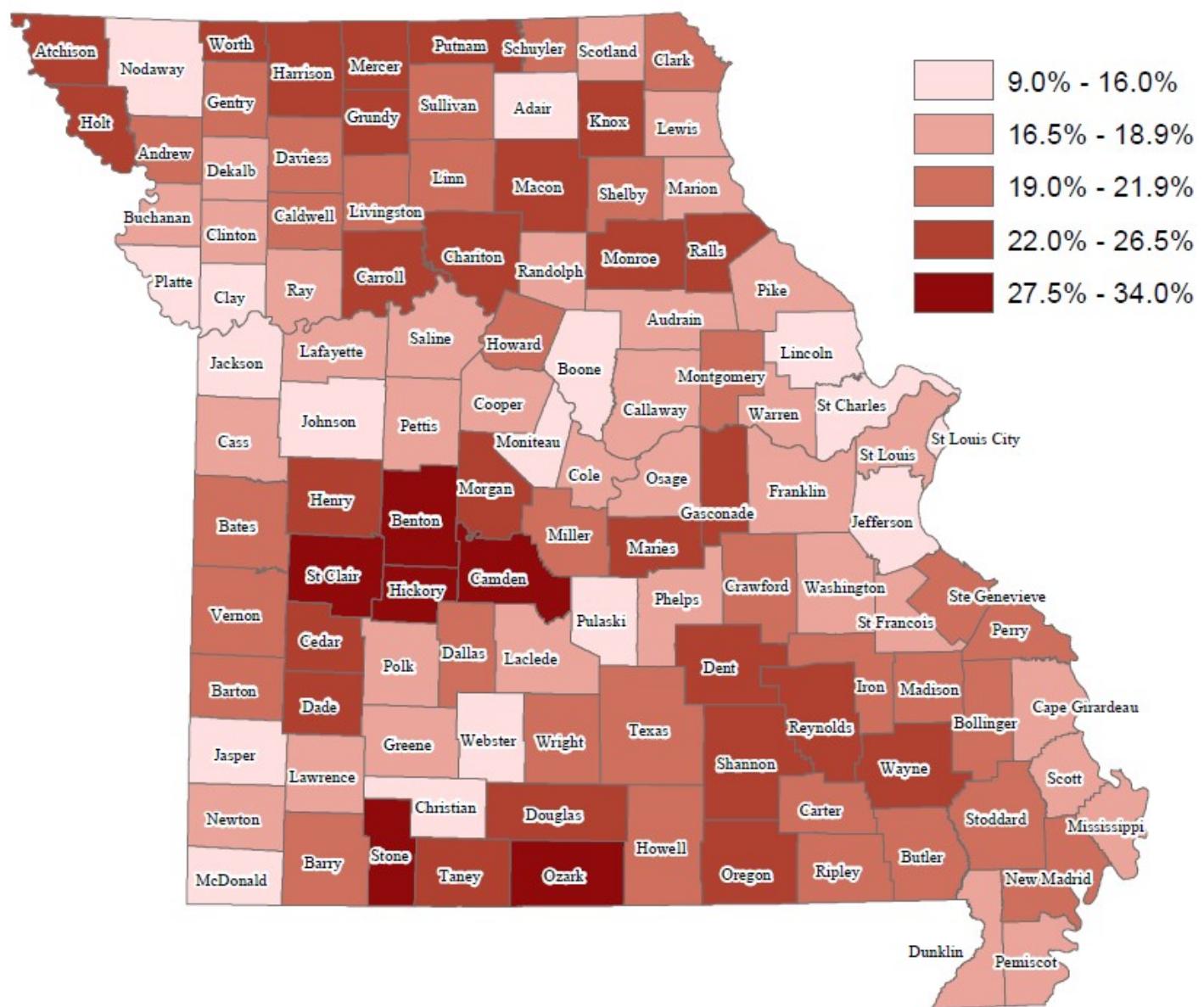
Senior Population

For the purpose of this PCNA, senior populations are comprised of individuals age 65 and older. In 2019, according to the U.S. Census Bureau, Missouri has an estimated senior citizen (65+) population of 1,006,725.⁸

- ♦ By 2030, according to the Missouri Economic Research and Information Center (MERIC), persons over the age of 65 will represent more than one-fifth of all Missourians.⁹
- ♦ By 2030, MERIC projects that there will be 1.4 million senior citizens in Missouri, which demonstrates an 87% population increase from 2000.⁹
- ♦ In 2019, the percentage of county population in Missouri for age 65 and older was less than 19% per county in urban areas.⁸

Missouri's older populations comprised a greater part of the rural communities, as compared to urban areas. However, both rural and urban Missouri experienced similar aging progressions. Interestingly, both groups saw an approximate 2% decline for the under 25 year old population and a corresponding 3% increase in the senior population. This further demonstrates the growing older adult population in all of Missouri. Longevity can be linked to healthier habits but also demonstrates the need for social systems to continue to care for the Missouri aging population.

Figure 10: Percent of Residents Age 65+ by County Map



Source: Missouri Department of Health and Senior Services, Bureau of Health Care Analysis and Data Dissemination.

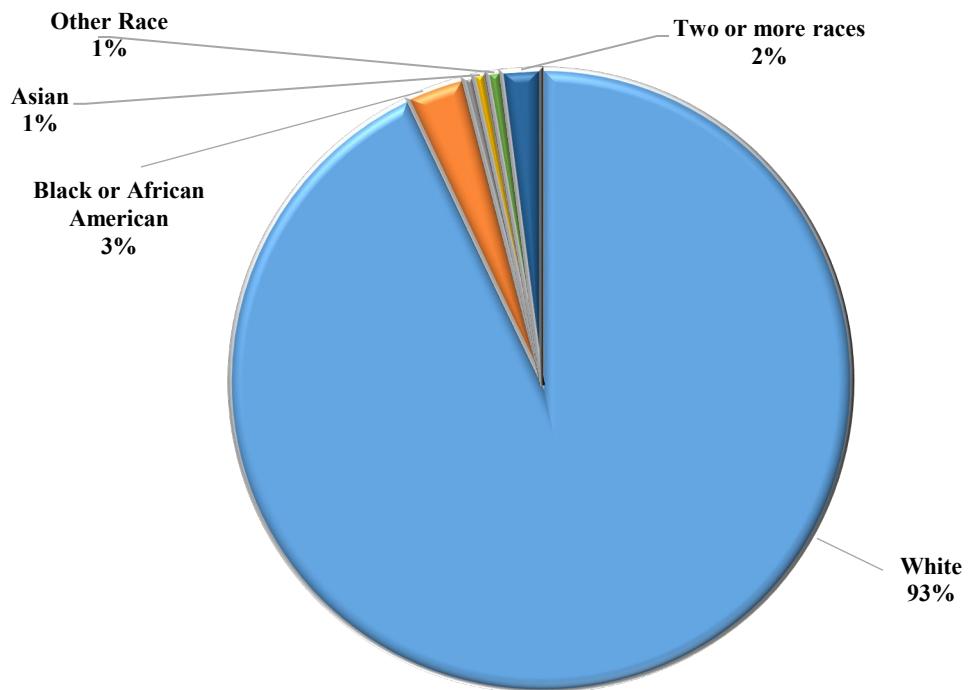
Race and Ethnicity

According to the U.S. Census Bureau, over 82% of the Missouri population identified as white. The population distribution tables illustrate the total Missouri population distribution regarding race and ethnicity, according to the U.S. Census survey data from 2013-2017.¹⁰

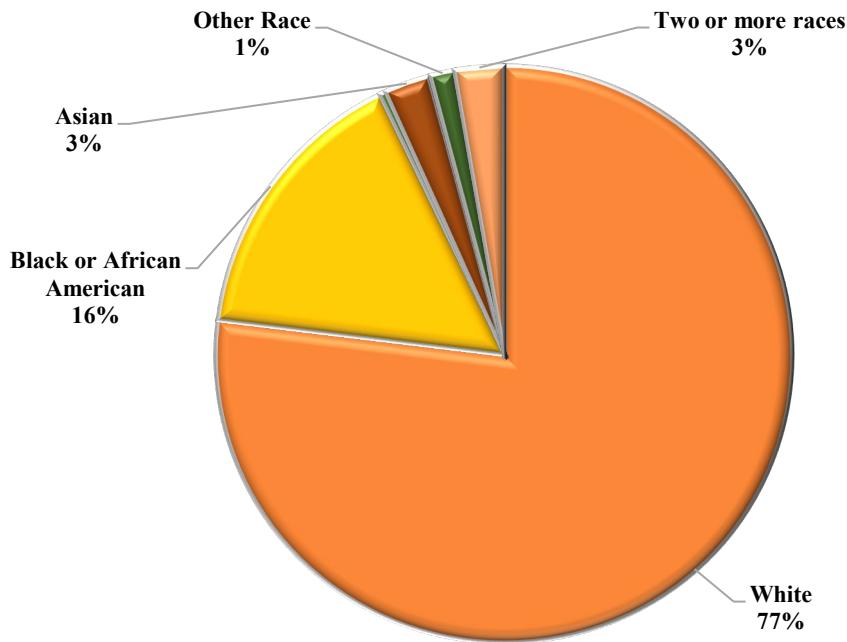
Total Missouri Population Distribution - Race	
White	82.4%
Black or African American	11.6%
American Indian and Alaska Native	0.4%
Asian	1.9%
Native Hawaiian and Other Pacific Islander	0.1%

Total Missouri Population Distribution - Ethnicity	
Hispanic or Latino	4%
Not Hispanic or Latino	96%

Racial Diversity in Missouri Rural Counties



Racial Diversity in Urban Missouri Counties



Even though Missouri's rural counties are less racially and ethnically diverse compared to urban counties, the diverse persons who live in rural areas should have access to care and be able to avoid isolation. However, fewer people identify themselves as African American or Black, American Indian/Alaska Native, Asian, Native Hawaiian and other Pacific Islander residing in rural areas.

Based on the U.S. Census survey data from 2013-2017:

- ◆ Approximately 7% of rural residents identified as Non-White, compared to 23% of urban residents.
- ◆ In addition, more than half (54 of 99) of the rural counties had <5% of their population identified as African American or Black, American Indian/Alaska Native, Asian, Native Hawaiian, or other Pacific Islander.
- ◆ Those identifying as Black/Non-Hispanics comprised of the largest non-white group in both rural and urban areas in Missouri.
- ◆ In urban areas, Black/Non-Hispanics represented 16% of the total urban population.
- ◆ In rural areas, Black/Non-Hispanic represented 3% of the total rural population.
- ◆ Missouri's overall total Black/Non-Hispanic population of approximately 12% was comparable to the U.S. National average of approximately 13%.
- ◆ The largest number of Black/Non-Hispanic residents reside in rural southeast Missouri.
- ◆ However, 3 rural counties represent a larger Black/Non-Hispanic population, as compared to other rural counties. Pemiscot (27%), Mississippi (24%), and New Madrid (16%).
- ◆ Missouri's 4% total Hispanic population is relatively small, especially when compared to the overall U.S. Hispanic population of 17%.
- ◆ Missouri's total Hispanic population (4%) consists of 1% of the total rural population and 3% of the total urban population. This equates to 3% of the 34% total rural population and 5% of the 66% total urban population being Hispanic.

Geographic Highlights – Contiguous States

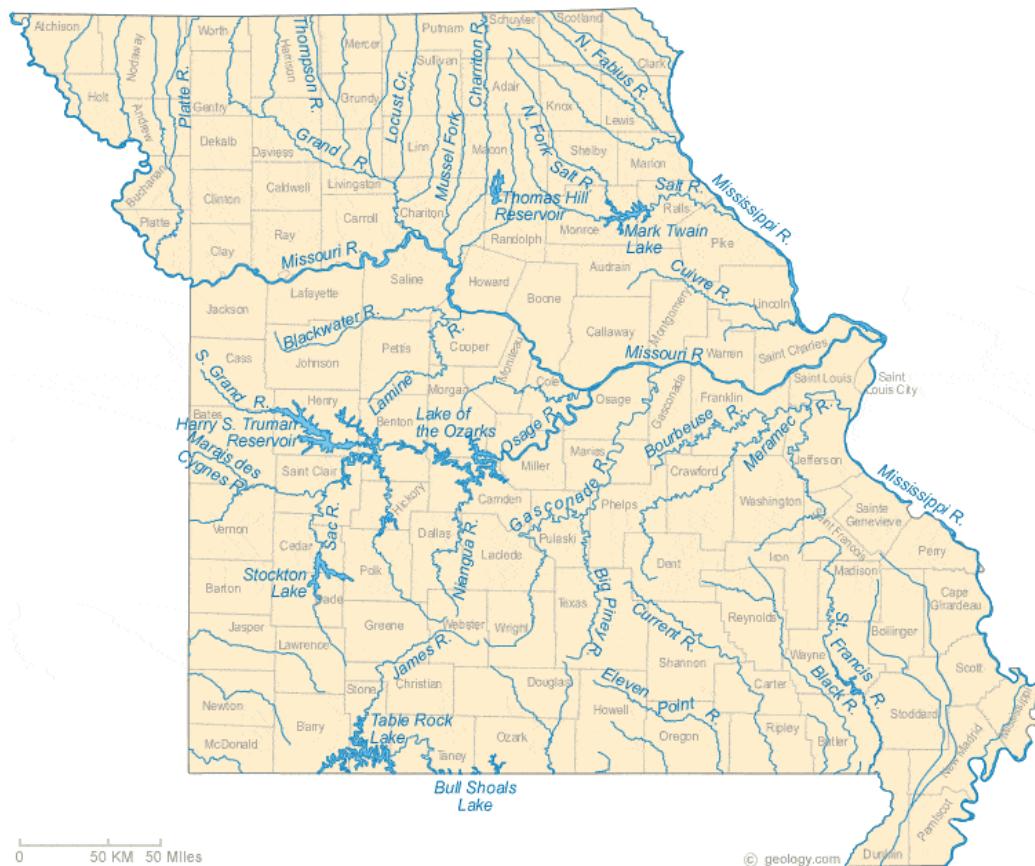
Missouri is tied with Tennessee with the most contiguous states (8) in the U.S. Missouri is bordered by Iowa in the north; Illinois, Kentucky, and Tennessee in the east; Arkansas in the south; and Oklahoma, Kansas, and Nebraska in the west.¹¹



Geographic Highlights – Size and Other Features

- ◆ Missouri is named after the Missouri Native American tribe.
- ◆ Missouri Capital: Jefferson City
- ◆ Missouri state flower: white hawthorn.
- ◆ Missouri state bird: blue bird.
- ◆ Missouri state animal: Missouri mule.
- ◆ Missouri is the top producer of mined lead in the U.S.
- ◆ Gateway Arch in St. Louis is the tallest manmade monument in the U.S.; 630 feet.
- ◆ Missouri has a total area of 68,728.3 square miles, including 960.2 square miles of water, making it the 18th-largest state by area.¹²
- ◆ Missouri is home to over 7,300 caves¹³, and over 110,000 miles of running water¹⁴.
- ◆ Missouri highest point: Taum Sauk Mountain; 1,772 feet located in Iron County.¹⁵
- ◆ Missouri lowest point: Saint Francis River; 230 feet located in Dunklin County.¹⁵

Figure 11: Missouri Lakes, Rivers and Water Resources¹⁶

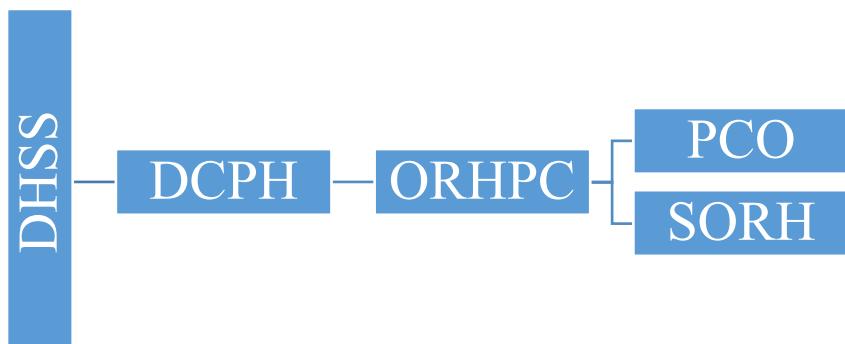


Geographic Highlights – Farmland and Agriculture

- ♦ Missouri's 95,000 farms account for two-thirds of Missouri's total land acreage¹⁷,
- ♦ In 2019, according to the Missouri Department of Labor, 2 fatalities and 968 injury incidents were reported for those in the agriculture, forestry, fishing, and hunting industries.¹⁸

The Office of Rural Health and Primary Care

The Office of Rural Health and Primary Care (ORHPC) is located in the DHSS, Division of Community and Public Health (DCPH). The ORHPC is comprised of the State Office of Rural Health (SORH) and the PCO.



The DHSS serves the citizens of Missouri by working to improve the health and quality of life for Missourians of all ages.¹⁹ The DHSS website: <https://health.mo.gov/>.

Missouri Department of Health and Senior Services	
VISION	Healthy Missourians for life.
MISSION	To be the leader in promoting, protecting, and partnering for health.

The DHSS aspires to protect the health and keep Missourians safe. The DCPH is responsible for supporting and operating more than 100 programs and initiatives addressing public health issues, such as communicable disease control, chronic disease management, genetic health conditions, cancer, pregnancy, vital statistics and health care access. The division also assures the continuity of essential public health services to all citizens of and visitors to the state of Missouri.²⁰

The ORHPC administers programs that serve and support communities, health care providers, federally qualified health centers, rural health clinics, and rural hospitals, including small rural hospitals, and Critical Access Hospitals (CAHs). The ORHPC focuses on increasing access to quality health care, increasing healthcare workforce in healthcare professional shortage areas, and targeting health improvements in rural and underserved areas, utilizing partnerships to make an impact in health in Missouri. Additionally, the PCO initiatives increase access to quality primary care health services.

The Missouri Primary Care Office

Missouri PCO webpage: <https://health.mo.gov/living/families/primarycare/index.php>.

The purpose of the PCO is to improve access to comprehensive primary care services and increase health care workforce availability to meet the needs of the Missouri underserved populations. The PCO partners with federal and state programs, communities, private entities, health care facilities, and providers to assess, develop, and expand comprehensive, community-based primary health care services.

Missouri PCO operates in several areas:

- ◆ Measuring access to primary care through health care workforce and shortage designation analysis;
- ◆ Helping to recruit and retain health professionals in underserved communities; and
- ◆ Collaborating and providing technical assistance to support improved access to primary care services.
- ◆ Managing multiple programs, including Missouri's J-1 Visa, National Interest Waiver (NIW), and health professional student loan and loan repayment programs.

The Conrad 30 State J-1 Visa Waiver Program

Missouri Conrad 30 State J-1 Visa Waiver Program webpage:

<https://health.mo.gov/living/families/primarycare/j1visa/index.php>.

The Conrad 30 State J-1 Visa Waiver Program was established to improve accessibility to health care for underserved populations by providing support for J-1 visa waiver requests on behalf of Foreign Medical Graduates (FMGs), who have obtained a J-1 visa for graduate medical studies in the U.S.

Under the J-1 Visa Waiver Program, every fiscal year, each state is allotted a maximum of 30 J-1 visa waivers for which they may provide recommendations.

- ◆ The Missouri J-1 Visa Waiver Program recommends waivers for primary care physicians (Family Medicine, General Pediatrics, General Obstetrics/Gynecology [OB/GYN], General Internal Medicine, and General Psychiatry) and physician specialists in federally designated (HPSA), Medically Underserved Areas (MUA), or Medically Underserved Populations (MUP), with priority given to primary care physicians.
- ◆ The J-1 Visa waiver waives the two-year home residency requirement allowing a foreign medical graduate to attend an advanced training program in the U.S. and waives the requirement for graduates to return to their native country.
- ◆ The J-1 Visa waiver is granted in exchange for an obligation to practice in a federally designated HPSA/ MUA for at least three years.
- ◆ View <https://data.hrsa.gov/> for information about specific locations designated as HPSAs.

The DHSS, ORHPC, PCO provides recommendations for the chosen FMGs, in the form of support letters. These letters of support are sent directly to the U.S. Department of State (DOS), Waiver Review Division. PCO provides recommendations for J-1 Visa applicants; the Department of State grants the actual waivers. The DOS is the granting authority for J-1 Visa waivers.

In Missouri, the J-1 Waiver Program has positively contributed to facility and organizational recruitment efforts, thereby increasing access to care in underserved areas of Missouri. However, historically underserved urban areas have been particularly well-served by Specialist FMGs, who have been granted J-1 Visa waivers. Figure 9 illustrates (2015-2020) the number of J-1 Visa Waivers supported, percentage distribution in rural and urban underserved areas, and percentage distribution of primary care physicians and specialist physicians.

Figure 12: J-1 Visa Conrad State 30 Waiver Distribution

Year	# of J-1 Visa Applications Supported	% Employed in Rural Areas	% Employed in Urban Areas	% Primary Care Physicians	% Specialist Physicians
2015	30	13%	87%	43%	57%
2016	30	23%	77%	17%	83%
2017	30	20%	80%	83%	17%
2018	30	7%	93%	7%	93%
2019	30	20%	80%	10%	90%
2020	30	20%	80%	10%	90%

National Interest Waiver Program

NIW webpage: <https://health.mo.gov/living/families/primarycare/j1visa/niw.php>.

The NIW Program allows professionals of exceptional ability to request a waiver of the U.S. Immigration labor certification requirements, based on a letter of recommendation from the DHSS. The DHSS, ORHPC, PCO provides an official letter to the U.S. Citizenship and Immigration Services (USCIS), housed within the Department of Homeland Security (DHS). The NIW Program effectively helps foreign physicians attain permanent residency status in the U.S and increases access to care in Missouri's underserved areas.

Physicians applying for a NIW are required to work full-time for five years in a Missouri HPSA (<https://data.hrsa.gov/tools/shortage-area/hpsa-find>). Time spent in H1-B status to fulfill J-1 Visa Waiver requirements may be counted towards the five year term.

The PCO official letter of support indicates that the work of the health professional is in the public interest and emphasizes the importance and value in retaining the health professional. The employment of these professionals greatly benefits Missouri and the nation.

The table below exhibits the number of NIW Waivers requests DHSS supported (2015-2020), percentage distribution in rural and urban underserved areas, and percentage distribution of primary care physicians and specialist physicians.

Figure 13: Missouri National Interest Waiver

Year	# of NIW Waiver Requests Supported	% Employed in Rural Areas	% Employed in Urban Areas	% Primary Care Physicians	% Specialist Physicians
2015	15	13%	87%	13%	87%
2016	18	11%	89%	83%	17%
2017	19	4%	96%	11%	89%
2018	12	16%	84%	16%	84%
2019	7	0%	100%	0%	100%
2020	30	12%	88%	12%	88%

Health Professional Student Loan and Loan Repayment Programs

The Health Professional Loan and Loan Repayment programs administered by the DHSS are designed to increase access to health care for Missourians located in HPSAs. In parts of Missouri, a shortage of primary health care providers makes it difficult for low-income, uninsured, and geographically isolated Missourians to receive health care. By working with health care providers and communities, access to care can be improved for the underserved.

Nurse Student Loan (NSL) Program

NSL webpage: <https://health.mo.gov/living/families/primarycare/healthprofloans/>.

The NSL Program is a competitive state program that awards funding to Missouri residents attending a Missouri institution pursuing education leading to careers as licensed practical nurses or

professional nurses. NSL recipients earn forgiveness on their DHSS-issued loans by providing direct patient care services in any Missouri hospital, or in a facility located within a Missouri HPSA.

The table below shows the eligible nursing programs, associated licensure, enrollment requirements, and the amount of funding, per award, provided by the NSL Program.

Program Type	Must be licensed as	Must be Enrolled	Funding Amount Per Academic Year
Practical Nursing Certificate or Diploma	Licensed Practical Nurse (LPN)	Full-Time	\$2,500
Diploma Nurse (DN)	Registered Nurse (RN)	Full-Time	\$5,000
Associate Degree in Nursing (ADN)	RN	Full-Time	\$5,000
Bachelor Degree in Nursing (BSN)	RN	Full-Time	\$5,000
Master Degree in Nursing (MSN)	Advanced Practice Registered Nurse (APRN)	Full-Time	\$5,000
Doctoral Degree in Nursing (PhD, DNP, EdD)	APRN	Part-Time or Full-Time	\$5,000

The tables below illustrate how many NSL awardees completed their service obligations in 2018, 2019, and 2020, by licensure type and by rural or urban service setting.

2018-2020 NSL Completed Service Obligation by Licensure Type				
	LPN	RN	APRN	Total
2018	1	23	1	25
2019	3	20	1	24
2020	2	20	2	24
Total 2018-2020	6	63	4	73

2018-2020 NSL Completed Service Obligation by Rural/ Urban			
	Rural	Urban	Total
2018	4	21	25
2019	4	20	24
2020	4	20	24
Total 2018-2020	12	61	73

In 2020, 33 NSL recipients were actively fulfilling their services obligations, with 82% serving in urban underserved areas, and 18% in rural underserved areas.

Nurse Loan Repayment Program (NLRP)

NLRP webpage: <https://health.mo.gov/living/families/primarycare/loanrepayment/>.

The NLRP is a competitive state program that awards funding to Missouri RN and APRN for the repayment of eligible educational loans. NLRP recipients earn forgiveness on their DHSS-issued loans by providing direct patient care services in any Missouri hospital, or in a facility located within a Missouri HPSA.

The table below shows eligible nursing programs, the associated licensure, and the amount of funding, per award, provided by the NLRP.

Program Type	Must be licensed as	Funding Amount
DN	Registered Nurse (RN)	\$10,000
ADN	RN	\$10,000
BSN	RN	\$10,000
MSN	Advanced Practice Registered Nurse (APRN)	\$20,000
PhD, DNP, EdD	APRN	\$20,000

The table below illustrates the number of NLRP awards provided per licensure type and rural or urban service for 2015-2020.

Year Awarded	Licensure Type	Awards Provided	Rural Service	Urban Service	Total Awards
2015	APRN	12	5	7	26
	RN	14	4	10	
2016	APRN	10	6	4	19
	RN	9	6	3	
2017	APRN	12	5	7	25
	RN	13	5	8	
2018	APRN	21	12	9	39
	RN	18	10	8	
2019	APRN	4	2	2	7
	RN	3	0	2	
2020	APRN	14	5	9	33
	RN	19	8	11	

In 2020, 49 NLRP recipients were actively fulfilling their services obligations, with 33% serving in rural underserved areas, and 67% in urban underserved areas.

Primary Care Resource Initiative for Missouri (PRIMO) Program

PRIMO webpage: <https://health.mo.gov/living/families/primarycare/primo/>.

The PRIMO Program is designed to improve health care delivery in the state of Missouri by providing student loans for Missouri residents working toward a qualifying health care degree leading to licensure required to be Physicians, Dentists, Dental Hygienists, and Psychiatrists. After obtaining the appropriate degree and licensure, PRIMO recipients earn forgiveness on their DHSS-issued loans by providing direct patient care services in rural and underserved communities.

The table below illustrates the number of PRIMO student loans issued from 2015-2020, displayed by discipline.

PRIMO Student Loans 2015-2020				
Year	Medical	Dental	Behavioral	Total by Year
2015	20	3	2	25
2016	7	10	0	17
2017	12	6	0	18
2018	4	4	0	8
2019	1	6	0	7
2020	0	4	0	4
Total by Loan Type	44	33	2	79

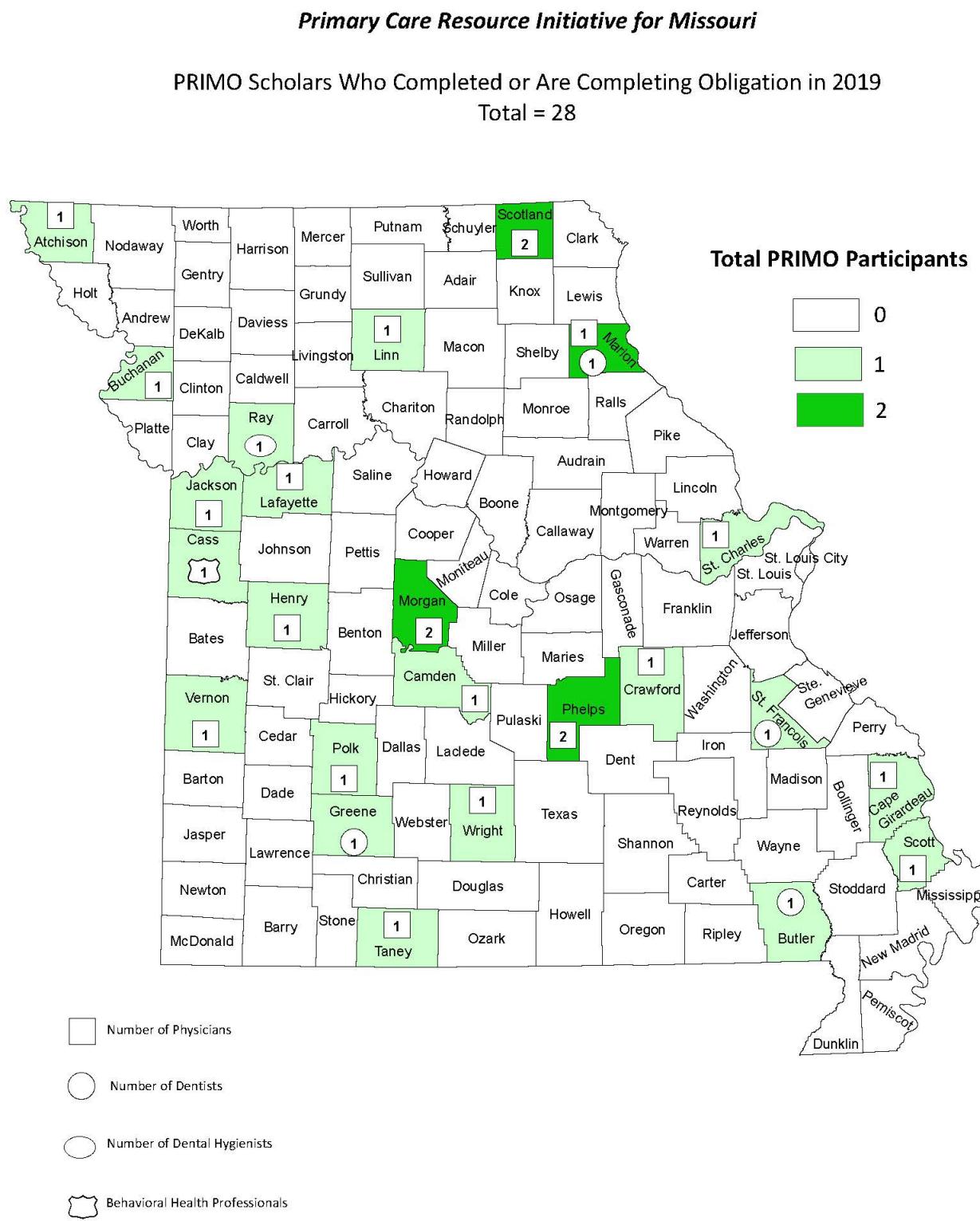
The two tables below illustrate the number of PRIMO recipients, who have completed their service obligations per specialty and rural/urban service area from 2017-2020.

2017-2020 PRIMO Completed Service Obligation by Specialty					
	2017	2018	2019	2020	Total 2017-2020
Family Medicine	5	2	5	6	18
Dentist	1	2	2	1	6
Pediatrics	0	0	2	0	2
Internal Medicine	1	0	1	0	2
OB/GYN	1	0	0	2	3
Psychiatry	0	0	1	0	1
Dental Hygienist	0	1	0	0	1
Total	8	5	11	9	33

2017-2020 PRIMO Completed Service Obligation by Rural/ Urban			
	Rural	Urban	Total
2017	5	3	8
2018	4	1	5
2019	7	4	11
2020	7	2	9
Total 2017-2020	23	10	33

Figure 14 demonstrates the number and specialty of PRIMO recipients fulfilling their service obligation per county in 2019.

Figure 14: Primary Care Resource Initiative for Missouri Map



Missouri Department of Health and Senior Services

Office: Office of Rural Health and Primary Care
Initial: MG
Date Printed: January 2020

In 2020, 27 PRIMO recipients were fulfilling their service obligations, 22 of which were serving in Missouri rural areas, and five in underserved urban areas. Of these 27 providers, four were General Dentists; 16 were Family Medicine physicians; two were Family Medicine and Obstetrics physicians; three were Pediatricians; one was an OB/GYN physician; and one was a Psychiatrist.

Student Loan Repayment Program (SLRP)

Missouri SLRP webpage: <https://health.mo.gov/living/families/primarycare/loanrepayment/slrp.php>.

HRSA, NHSC SLRP webpage: <https://nhsc.hrsa.gov/loan-repayment/state-loan-repayment-program/index.html>.

The SLRP is a federally funded grant with state matching dollar-to-dollar. This competitive program seeks to recruit and retain providers in rural and underserved communities. The SLRP offers loan repayment to osteopathic and allopathic providers of the following disciplines: OB/GYN, Pediatrics, Family Practice, Internal medicine, Psychiatry. Additionally, those dental providers with a Doctor of Dental Surgery (DDS), or Doctor of Medicine in Dentistry (DMS), are eligible for the SLRP. Forgiveness of this award is earned with a two year, full-time service obligation, which must be provided in a qualifying location.

The table below illustrates the SLRP awards granted from 2015-2020, including awardee specialties.

SLRP Awards by Specialty 2015-2020							
Specialty	2015	2016	2017	2018	2019	2020	Total 2015-2020
General Family Medicine	10	6	2	5	6	9	38
General Family Medicine & OB	0	0	0	0	0	1	1
General Internal Medicine	0	0	0	0	0	2	2
General Internal Medicine and Pediatrics	0	0	0	0	1	0	1
General Pediatrics	4	1	2	2	1	1	11
General OB/GYN	1	0	0	0	0	1	2
General Psychiatry	0	0	0	0	0	2	2
General Dentist	7	6	7	10	8	9	47
General Pediatric Dentist	0	0	1	0	1	0	2
Total Per Year	22	13	12	17	17	25	106

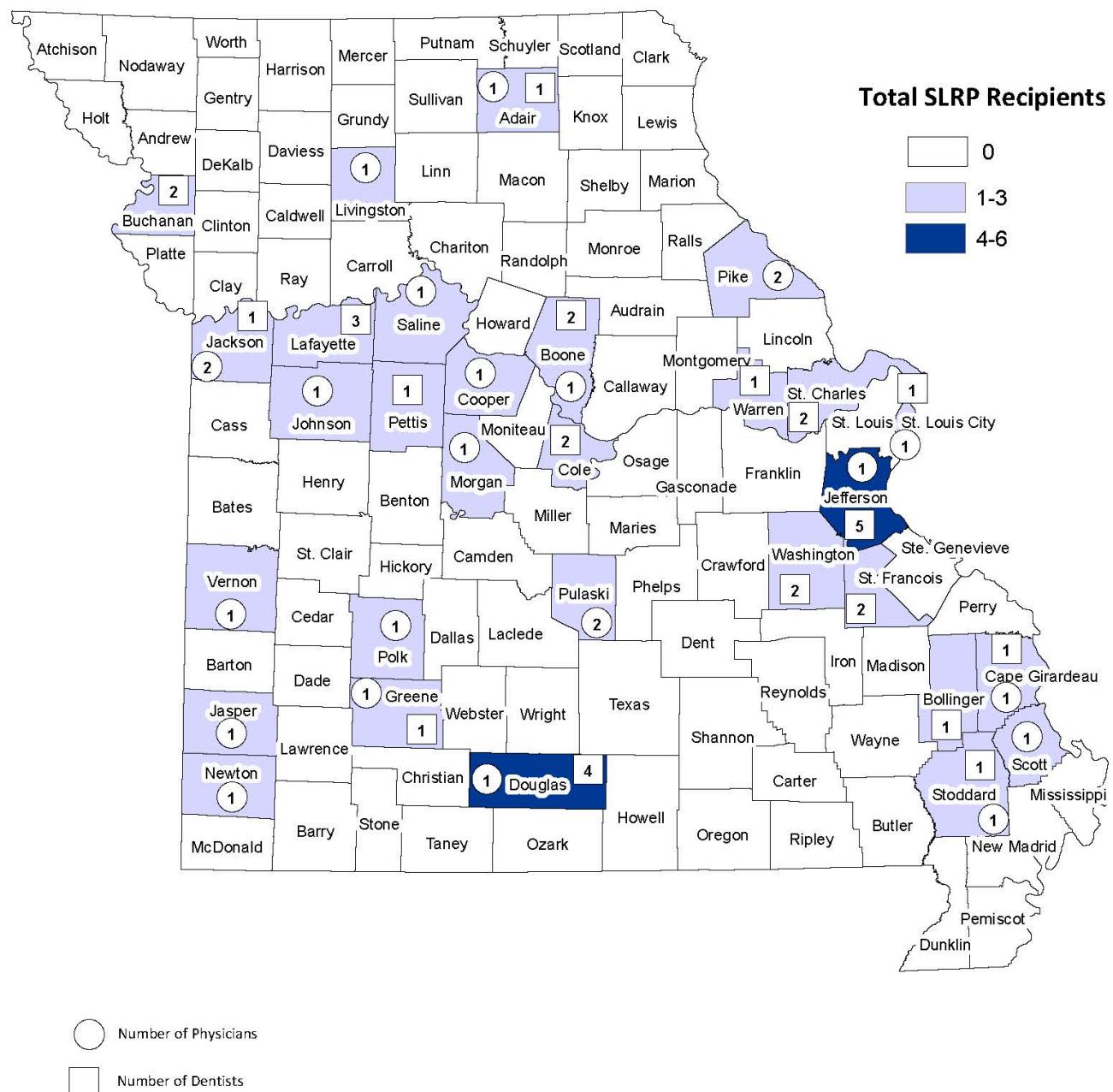
In 2020, 61 SLRP recipients were fulfilling their service obligations, 38 of which were serving in rural areas of the state, and 23 in underserved urban areas. Of the 61 providers, 28 were General Dentists; one was a Pediatric Dentist; 20 were Family Medicine physicians; one was a Family Medicine and Obstetrics physician; four were Pediatricians; one was an Internal Medicine and Pediatrics physician; one was an OB/GYN physician; and two were Psychiatrists.

Figure 15 demonstrates the number and specialty of SLRP recipients fulfilling their service obligation per county in 2019.

Figure 15: Student Loan Repayment Program Map

Student Loan Repayment Program (SLRP)

SLRP Recipients Who Completed or Are Completing Obligation in 2019
Total = 57



Office: Office of Rural Health and Primary Care
Initial: MG
Date Printed: January 2020

National Health Service Corps (NHSC)

NHSC webpage: <https://nhsc.hrsa.gov/>.

Since 1972, the National Health Service Corps (NHSC) has worked to connect primary health care clinicians to individuals with limited access to health care in the U.S.²¹ The NHSC accomplishes this goal by offering scholarships, loan repayment, and recruitment/placement services to skilled health care workers providing qualified health care services in HPSAs located in a NHSC approved site. The table below provides the names and descriptions of the scholarship and loan repayment programs currently offered by the NHSC.

NHSC Scholarship and Loan Repayment Programs		
Program Name	Program Description	Web Address
NHSC Scholarship Program	Students pursuing a career in primary health care are eligible to receive funding for their education in exchange for practicing in rural, urban, and tribal communities with limited access to care, upon graduation and licensure.	https://nhsc.hrsa.gov/scholarships/index.html
NHSC Loan Repayment Program (LRP)	Offers primary medical, dental, and mental and behavioral health care clinicians the opportunity to have their student loans repaid, while earning a competitive salary, in exchange for providing health care in urban, rural, or tribal communities with limited access to care.	https://nhsc.hrsa.gov/loan-repayment/nhsc-loan-repayment-program.html
NHSC Substance Use Disorder (SUD) Workforce LRP	Expands access to evidence-based SUD treatment in underserved, high-need communities across the country. Offers health care clinicians the opportunity to have their qualifying student loans repaid in exchange for serving at an NHSC-approved SUD treatment facility.	https://nhsc.hrsa.gov/loan-repayment/nhsc-sud-workforce-loan-repayment-program.html
NHSC Rural Community LRP	Supports clinicians working to combat the opioid epidemic in the nation's rural communities. Makes loan repayment awards in coordination with the Rural Communities Opioid Response Program (RCORP) within the Federal Office of Rural Health Policy (FORHP) to provide evidence-based SUD treatment, assist in recovery, and to prevent overdose deaths in rural communities across the nation.	https://nhsc.hrsa.gov/loan-repayment/nhsc-rural-community-loan-repayment-program
NHSC Students to Service LRP	Students to Service Loan Re-payment Program, medical students (MD or DO), dental students (DMD or DDS) and nursing students (NP or CNM) in their final year of school can receive loan repayment assistance in return for providing health care in urban, rural, or frontier communities with limited access to care.	https://nhsc.hrsa.gov/loan-repayment/nhsc-students-to-service-loan-repayment-program.html

NHSC sites are a critical part of the NHSC program, as NHSC clinicians must practice in NHSC approved sites, in order to fulfill their service obligations. The more NHSC approved sites available in Missouri increases the number of NHSC clinicians practicing in Missouri HPSAs, thereby increasing access to care.

The PCO works with the HRSA Division of Regional Operations (DRO) office to review NHSC site applicants and approve as many eligible sites as possible. The PCO collaborates with the DRO:

- ◆ Providing technical assistance to clinics and facilities applying to become NHSC sites;
- ◆ Reviewing site applications for eligibility; and
- ◆ Participating in virtual and in-person NHSC site visits.

There are 753 NHSC sites²² in Missouri. The table below shows the total NHSC sites and clinicians, as of January 21, 2021, with a breakdown of urban and rural.

NHSC Sites & Clinicians Urban/Rural			
	Rural	Urban	Total
NHSC Sites	452	301	753
NHSC Clinicians	325	375	700
Total	777	676	700

Partnerships

Missouri Primary Care Association (MPCA)

MPCA website: <https://www.mo-pca.org/>.

The ORHPC maintains a partnership and contracts directly with the MPCA. The MPCA's Missouri Health Professional Placement Services (MHPPS) is the State's leading nonprofit recruitment program solely devoted to rural and underserved areas.²² The MPCA, via the MHPPS, works with communities and providers with the aim of addressing workforce shortages in Missouri's most vulnerable areas. The MPCA and PCO collaboration and technical assistance efforts assists in placements of health professionals in medical practices in Missouri.

The table below shows the number of placements by profession, from 2015-2020.

2015-2020 Placements Per Profession					
	Family Medicine Physicians	Internal Medicine & Pediatrics Physicians	Advanced Practice Nurses	Dentists	Total Placements
2015	2	0	0	9	11
2016	1	1	1	8	11
2017	2	0	1	9	12
2018	2	0	2	6	10
2019	2	1	1	6	10
2020	1	0	1	8	10
Total	10	2	6	46	64

The table below shows the placements between rural and urban areas, from 2017-2020.

2017-2020 Placements Rural/Urban			
	Total Rural	Total Urban	Total
2017	6	6	12
2018	5	5	10
2019	6	4	10
2020	6	4	10
Total 2017-2020	23	19	42

The MPCA also provides free presentations on a number of topics, including: Curriculum Vitae (CV) writing, interviewing, and contract negotiation. In person training and webinar topics include:

- ♦ Employer of Choice: Strategies to Help You Create an Awesome Place to Work;
- ♦ Stop Workforce Burnout for Health care Leaders; and
- ♦ Recruit Your Future Clinicians: Discover the Hidden Tools In Your Backyard to Find the Right Candidate.

[Missouri Area Health Education Centers \(MAHEC\)](#)

MAHEC website: <https://mahec.org/>.

The ORHPC, PCO collaborates and contracts with MAHEC. The MAHEC focuses on “connecting students to careers, professionals to communities, and communities to better health,” with the mission “to enhance access to quality health care, particularly primary and preventive care by growing and supporting Missouri’s health care workforce.”²³ The MAHEC is comprised of three program centers, located in medical schools, and seven regional centers.

MAHEC Program Offices		
A.T. Still University Kirksville College of Osteopathic Medicine	Saint Louis University School of Medicine Dept. of Family and Community Medicine	University of Missouri-Columbia School of Medicine

The seven regional centers include the East Central AHEC, Mid-Missouri AHEC, Northeast AHEC, Northwest AHEC, Southeastern AHEC, Southwest AHEC, and West Central AHEC. MAHEC locations and contact information for the regional centers and locations are located on the MAHEC webpage: <https://mahec.org/locations/>.

MAHEC efforts include:

- ♦ Creating Academic-Community Partnerships.
- ♦ Partnering with state agencies and other organizations to promote overall improvement in community health status.
- ♦ Promoting health careers to Missouri youth.
- ♦ Providing educational resources to increase the retention of practitioners.
- ♦ Identifying and supporting potential health professionals.
- ♦ Promoting high-quality training of health professional students.

Through the contract with MAHEC, the PCO and MAHEC collaborate on growing Missouri's health care workforce by fostering a pipeline approach, preparing students for health care careers in Missouri. MAHEC increases the health care workforce by:

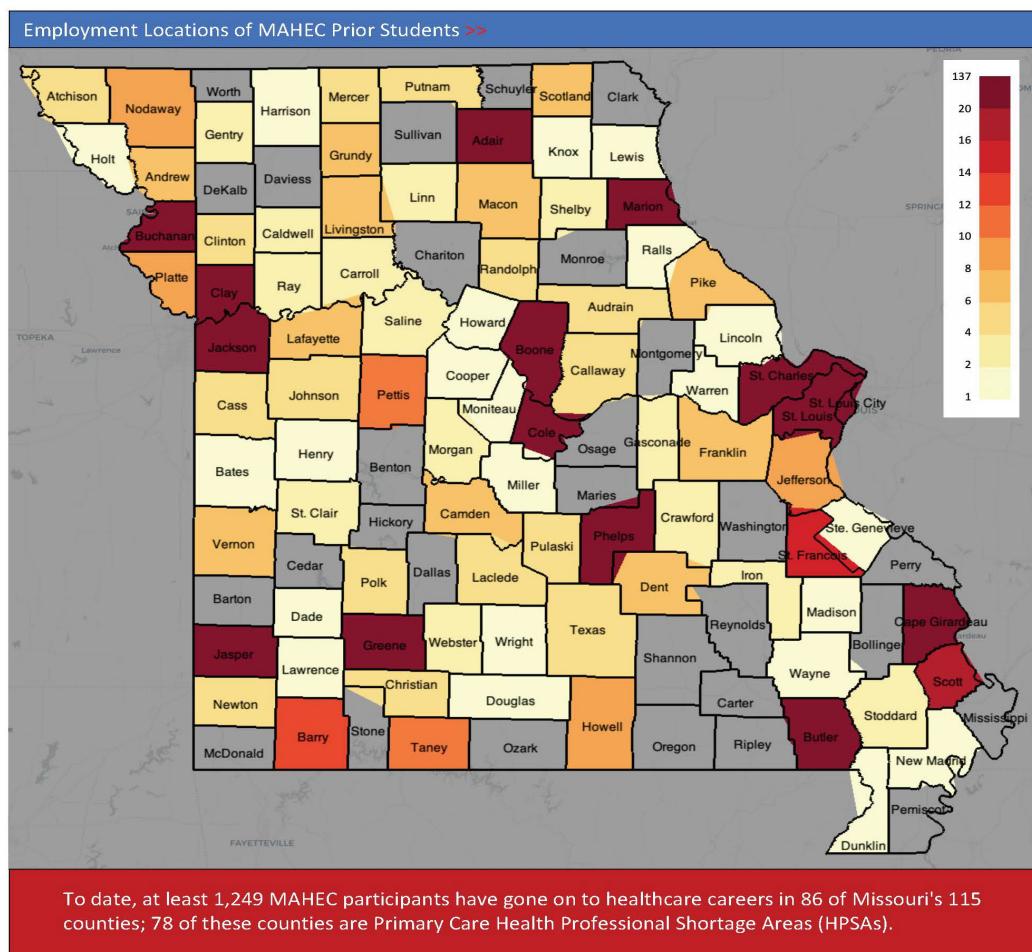
- ◆ Exposing Missouri's pre-college level youth to various health care professions, offering training opportunities, career counseling, and professional shadowing experiences; and
- ◆ Facilitating clinical training opportunities for medical, nursing, dental, and other allied health professional students.²⁴

Students who have explored and prepared for careers in the health field are now working as health care providers in communities across Missouri. Students may participate in MAHEC at different levels of the pipeline, as high school, undergraduate, or health professional training students.

The table below illustrates the number of new MAHEC pipeline students and MAHEC program participants beginning primary care residencies in Missouri, for 2018-2020.

MAHEC	2018	2019	2020
Number of new pipeline students identified	70	72	84
Number of MAHEC participants who began primary care residencies in Missouri	Data Not Available	54	53

Figure 17: Employment Locations of MAHEC Prior Students



Missouri Hospital Association (MHA)
MHA website: <https://web.mhanet.com/>.

The ORPHC maintains a partnership with the MHA. The MHA helps hospitals manage operations, treat patients, and serve communities, and with an emphasis “to create an environment that enables member hospitals and health care systems to improve the health of their patients and communities.”²⁵

The MHA increases access to care by providing resources for those seeking health care careers by:

- ◆ Providing resources for individuals who are seeking careers in health care, especially those uncertain of the specific role to pursue.
 - ◆ For more details, view the MHA’s Missouri Health Careers website: <https://missourihealthcareers.com/>.
- ◆ Providing a generous donation to assist in funding student loan and loan repayment programs for Missouri PRIMO and SLRP recipients. The MHA donation and collaboration enable the PCO to fund additional primary care providers through these programs.

Furthermore, the MHA assists in the administration of the federal Medicare Rural Hospital Flexibility (FLEX) grant, through a contract with the ORHPC, SORH. The MHA assists the CAHs to improve their financial and operational performance, quality of care, and address population health needs. For more information, view the MHA FLEX webpage: <https://web.mhanet.com/grants-contracts/flex/>

The State Office of Rural Health (SORH)

SORH webpage: <https://health.mo.gov/living/families/ruralhealth/>

The SORH is located within the DHSS, ORHPC. The SORH assumes a leadership role in working or contracting with state and federal agencies, universities, private interest groups, communities, foundations and local health centers to develop rural health initiatives and maximize the use of existing resources.⁶ The SORH administers the FLEX, SORH, Small Hospital Improvement Program (SHIP), and Coronavirus State Hospital Improvement Program HRSA grants.

The SORH acknowledges that rural communities face different health care and wellness issues than larger metropolitan areas. The SORH recognizes that receiving health care services may be challenging in remote areas due to travelling long distances to see a physician for routine checkups or screenings.



Rural hospitals, [Local Public Health Agencies \(LPHAs\)](#), [FQHCs](#) and [RHCs](#) serve as a vital and important source of primary and preventative care for patients in rural areas.²⁶

To help those in rural areas locate sources of care near them, the SORH developed a “Find a Health Care Facility” feature on their webpage, which visitors may use to easily search for and locate Missouri hospitals, FQHCs, and RHCs.

The “Find a Health Care Facility” feature is located on the Rural Health webpage: <https://health.mo.gov/living/families/ruralhealth>. To find a LPHA, refer to webpage: <https://health.mo.gov/living/lpha>.

In continual efforts to increase access to care, the SORH partners with the University of Missouri and provides funds for the Rural Track Pipeline Program (RTPP). The RTPP provides students with ongoing exposure to rural medicine. The RTPP has been highly successful in increasing access to care in Missouri's rural areas. Of all RTPP participants, approximately 55% practice in a rural location.²⁷ The AHEC RTPP information may be found here:

<https://www.medicine.missouri.edu/education/rural-scholars-program/rural-track-pipeline-program>.

Health Professional Shortage Area Designation

Shortage Area Designation – Health Professional Shortage Areas (HPSAs)

A HPSA is a geographic area, population group, or health care facility that has been designated by the HRSA as having a shortage of health professionals. HPSAs occur in both urban and rural settings.

There are three categories of HPSAs: Primary Care, Dental Health, and Mental Health.

PCOs begin the shortage designation process by:

- Conducting needs assessments in their states;
- Determining what areas are eligible for designations; and
- Submitting designation applications to HRSA.²⁸

PCOs use the HRSA's online portal, the SDMS, to submit shortage designation applications. HRSA uses the SDMS to review PCO designation application submissions.²⁸

Each HPSA designation is assigned a score, known as a HPSA score. HRSA calculates HPSA scores based on methodology that includes three disciplines: primary care, dental health, and mental health. The exact scoring criteria for each HPSA discipline and type vary. However, there are three common criteria across the disciplines:

- Population-to-provider ratio;
- Percent of population below 100% of the Federal Poverty Level (FPL); and
- Travel time to the nearest source of care (NSC) outside the HPSA designation area.²⁹

The table below shows scoring ranges for each HPSA discipline; the higher the score, the greater the need for health professionals.

HPSA Discipline	Range of Scores
Primary Care	0-25
Dental Health	0-26
Mental Health	0-25

For a more detailed look into HPSA scoring, visit: <https://bhw.hrsa.gov/workforce-shortage-areas/shortage-designation/scoring>. According to data.HRSA.gov, Missouri currently has a total of 896 HPSAs.³⁰

Missouri Health Professional Shortage Areas (HPSA)	
Description	Count
Total Dental Health HPSAs	318
Total Mental Health HPSAs	250
Total Primary Care HPSAs	328
Total HPSAs	896

Figure 16 shows a breakdown of the number of facility HPSA designations for each discipline.

Figure 16: Missouri HPSA Facility Designations - Table

HPSA Type			
Discipline	HPSA Type	HPSA Sub-Type	Total
Primary Care	Facility	Rural Health Clinic	192
		Federally Qualified Health Center	28
		Correctional Facility	1
		Federally Qualified Health Center Look A Like	1
Dental Health	Facility	Rural Health Clinic	192
		Federally Qualified Health Center	28
		Correctional Facility	2
		Federally Qualified Health Center Look A Like	1
Mental Health	Facility	Rural Health Clinic	192
		Federally Qualified Health Center	28
		Correctional Facility	6
		Federally Qualified Health Center Look A Like	1

For a more detailed look at HPSA designation types visit <https://bhw.hrsa.gov/shortage-designation/types>.

According to November 2020 HRSA, SDMS data, Missouri has a total of 7,323 primary care, mental health, and dental health providers, of which 1,645 (22%) practice in rural counties. Even though 34% of Missouri's total population lives in rural areas, only 22% of available healthcare providers deliver services to rural Missourians.

In order to create equity of service in rural and urban areas, the PCO utilizes HPSAs, which aid in determining where to focus federal, state, and other resources.

HPSAs can be located through the tools found at <https://data.hrsa.gov/tools/shortage-area>.

HPSAs can occur when there are too few, if any, providers in an area, when there are more patients than providers can treat or when transportation barriers prevent patients from reaching providers. Missouri utilizes HPSA designations to determine areas of unmet need for developing various programs, including recruitment and retention efforts and projects based on disparities. HPSA designation criteria is determined by HRSA. Shortage designation identifies an area, population, or facility experiencing a shortage of healthcare services.

There are three HPSA categories:

- ◆ Primary Care: Acknowledges the physician shortage in a service area; calculated from ratios of population to Pediatric, OB/GYN, Internal Medicine, and Family Practice Physicians.
- ◆ Mental Health: Acknowledges the psychiatric shortages in a service area; calculated from ratios of population to psychiatric mental health providers.
- ◆ Dental Health: Acknowledges the shortage of dentists in a service area; calculated from general dentists only; however, age and auxiliary assistance are also factors.

Missouri Primary Care Providers

View specific Missouri workforce data: <https://data.hrsa.gov>
<https://data.hrsa.gov/topics/health-workforce/ahrf>

The following maps illustrate the workforce data per health profession in each Missouri county. The data demonstrates the rate per 100,000 population. To view the exact number of primary care providers, total population, and rate per 100,000 population by county refer to [Appendix G](#).

Figure 17: Missouri MD & DO – All Primary Care Physicians Workforce Map

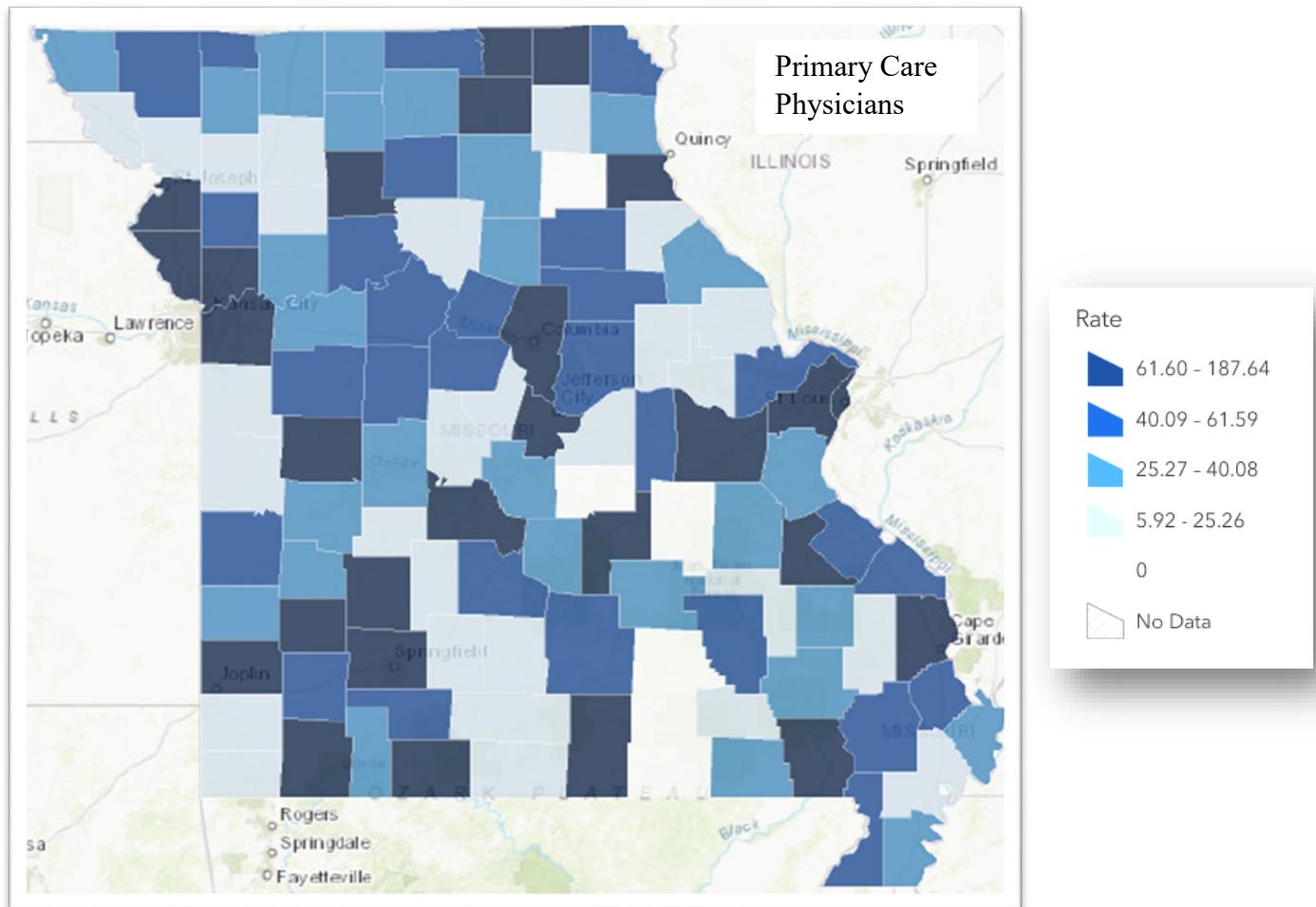


Figure 18: Missouri MD & DO – Family Medicine & General Practice Workforce Map

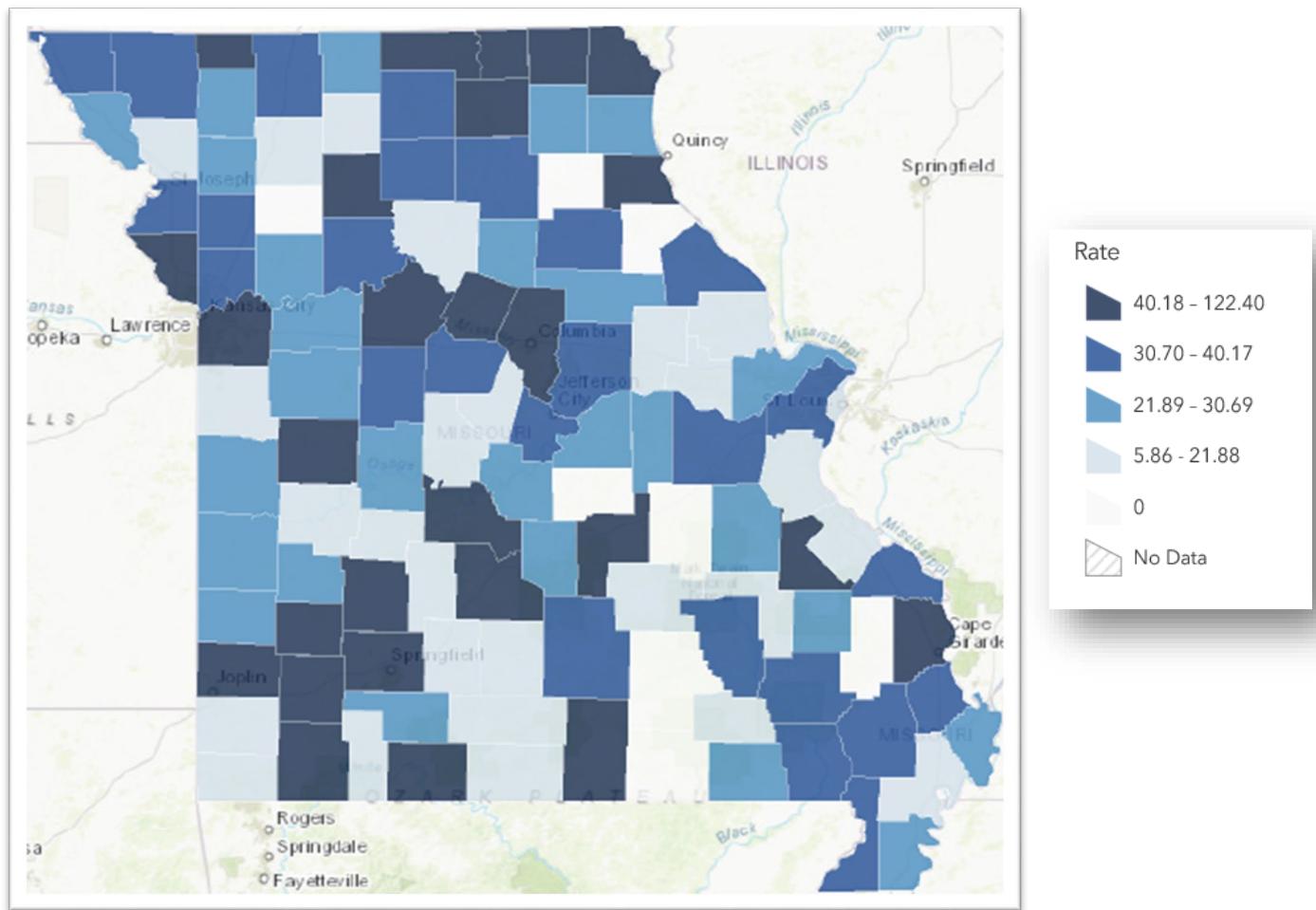


Figure 19: Missouri MD & DO – Internal Medicine Workforce Map

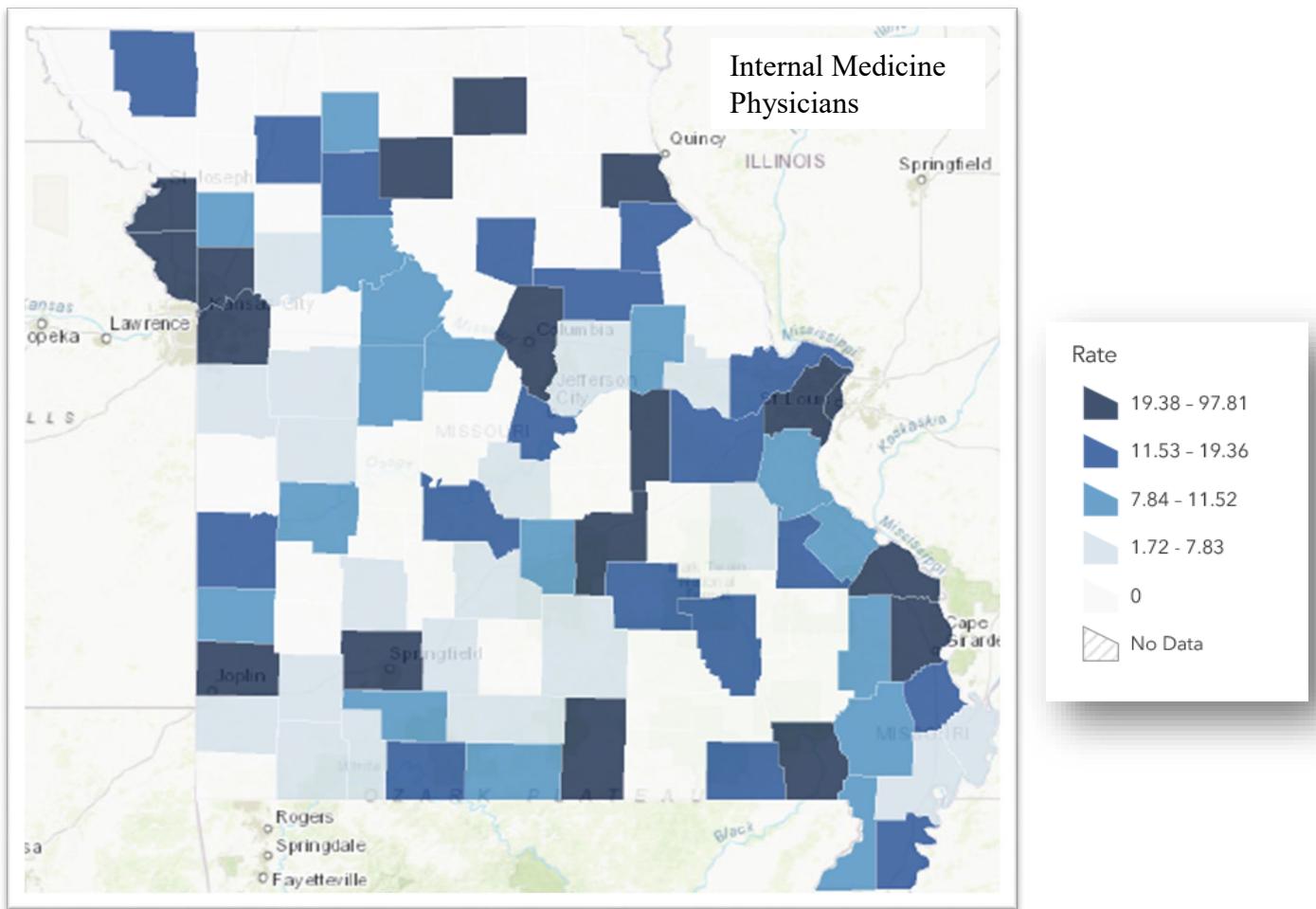


Figure 20: Missouri MD & DO – Pediatrics Workforce Map

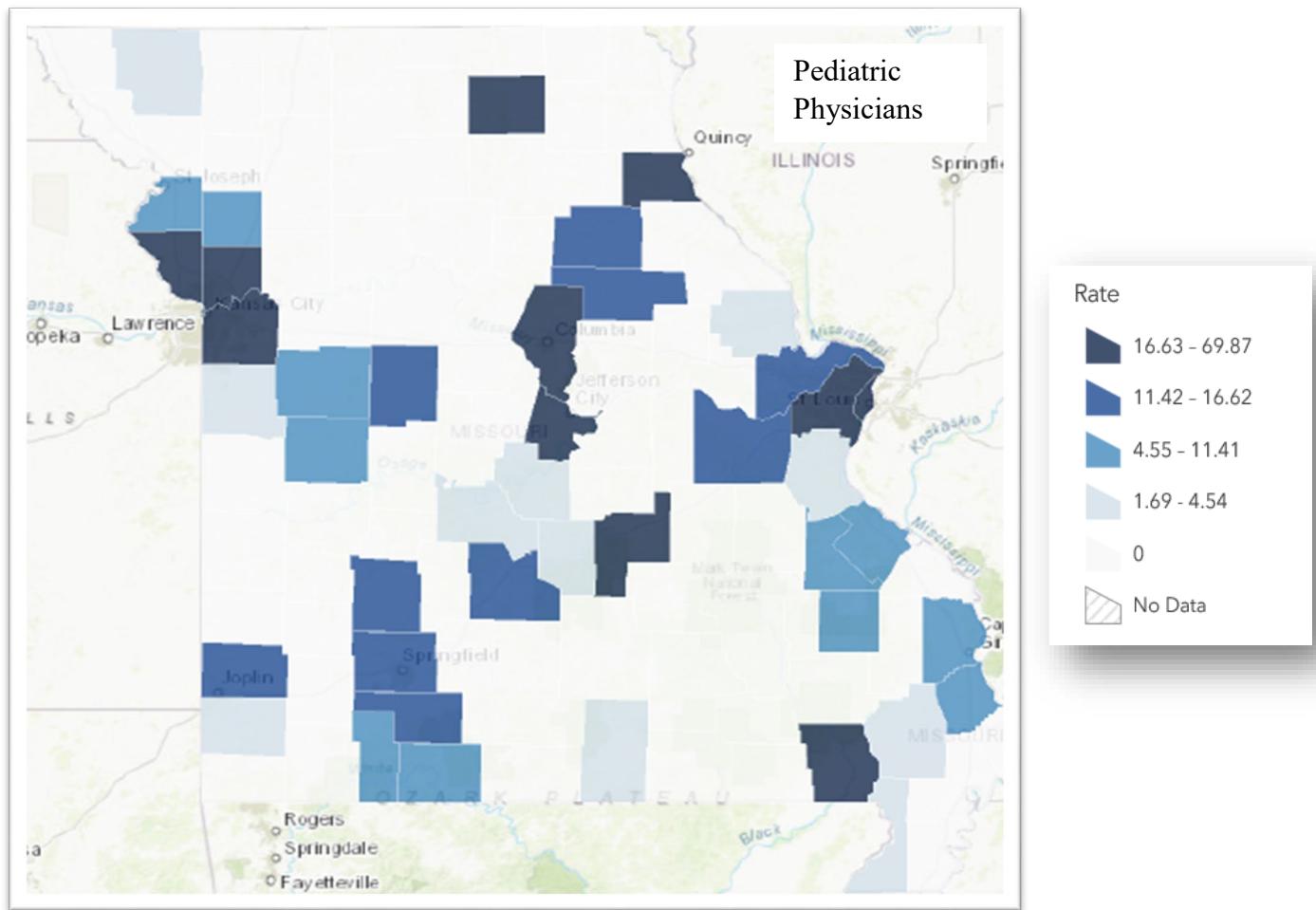


Figure 21: Missouri MD & DO – OB/GYN Workforce Map

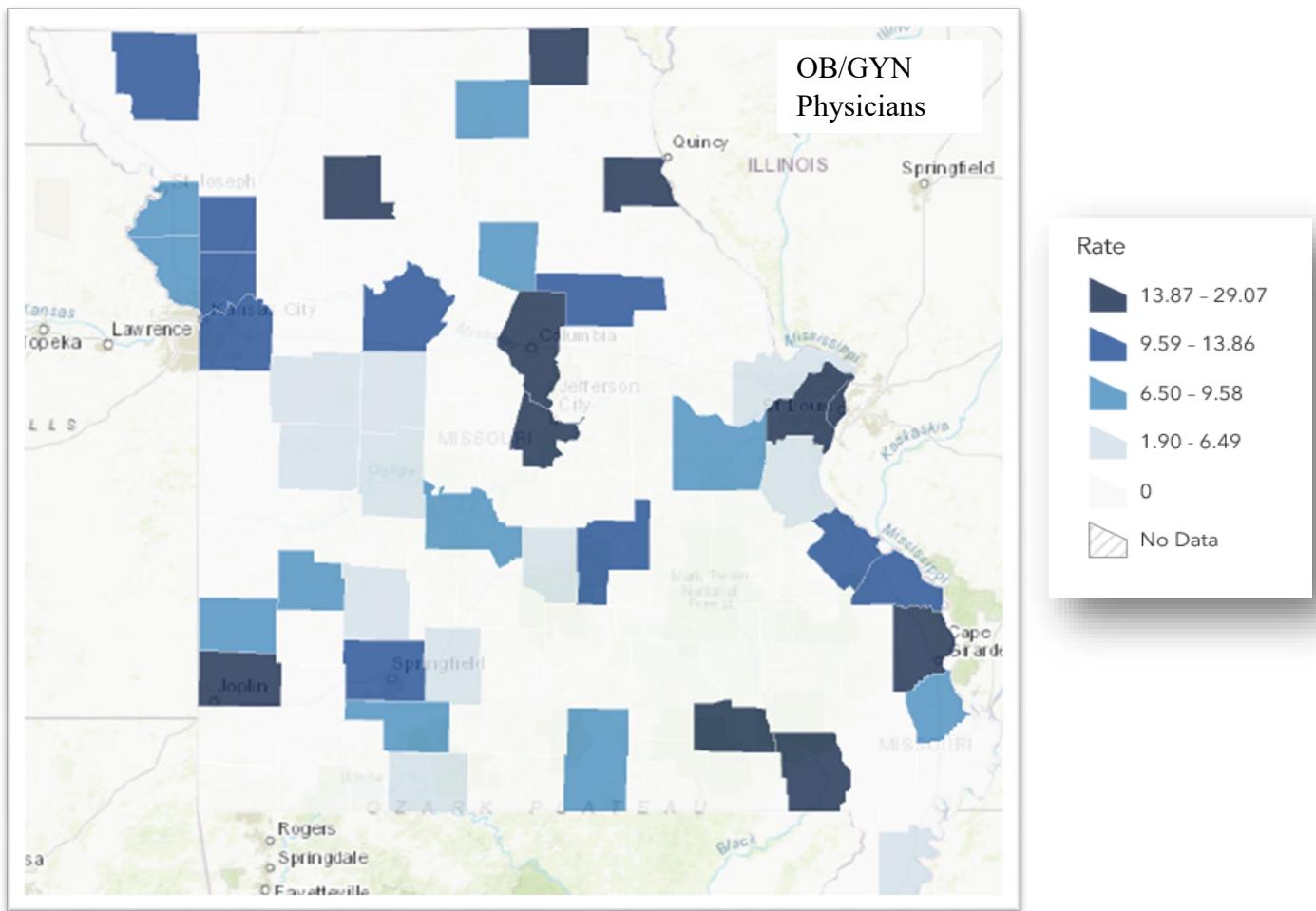


Figure 22: Missouri MD & DO – Psychiatry Workforce Map

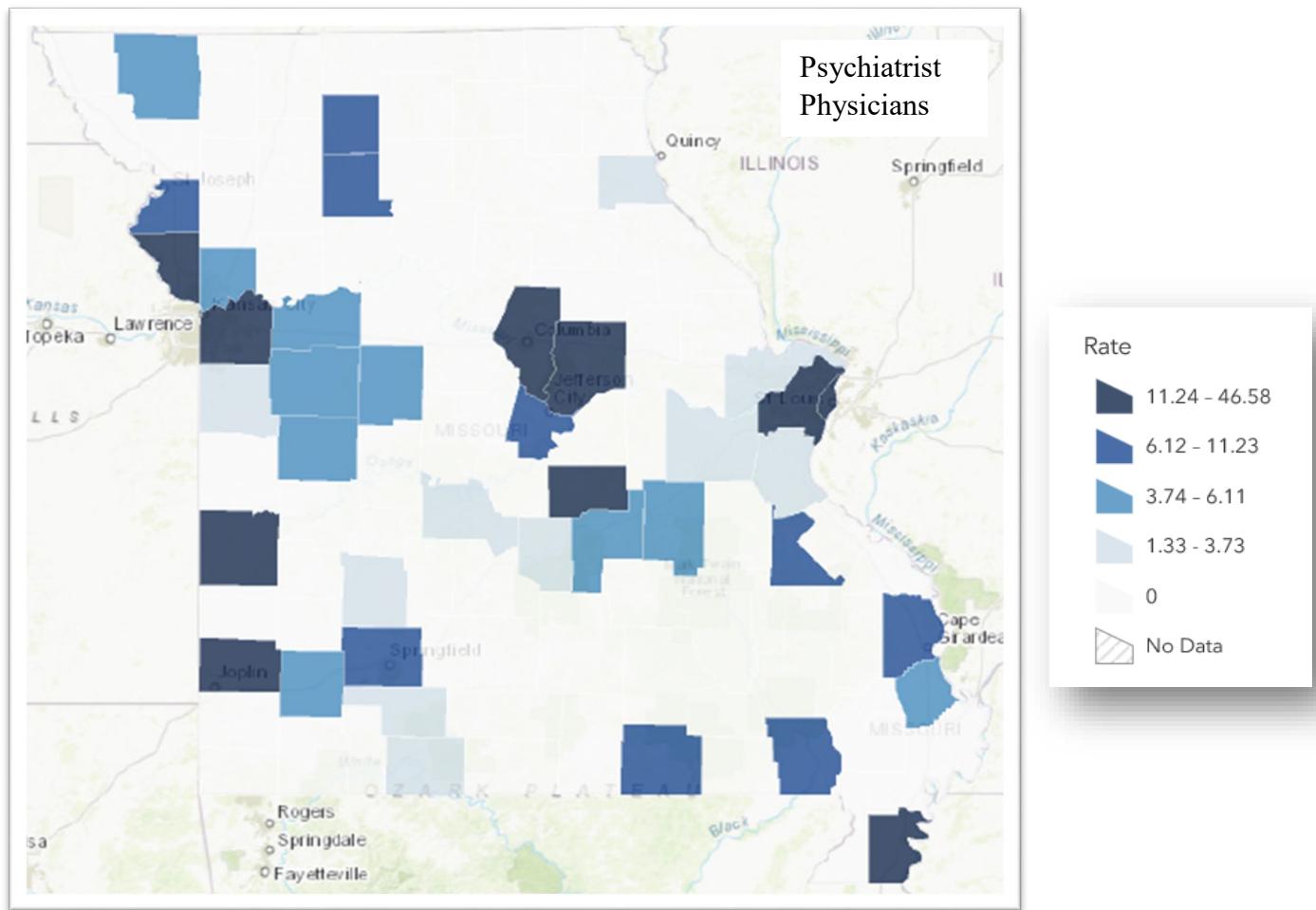
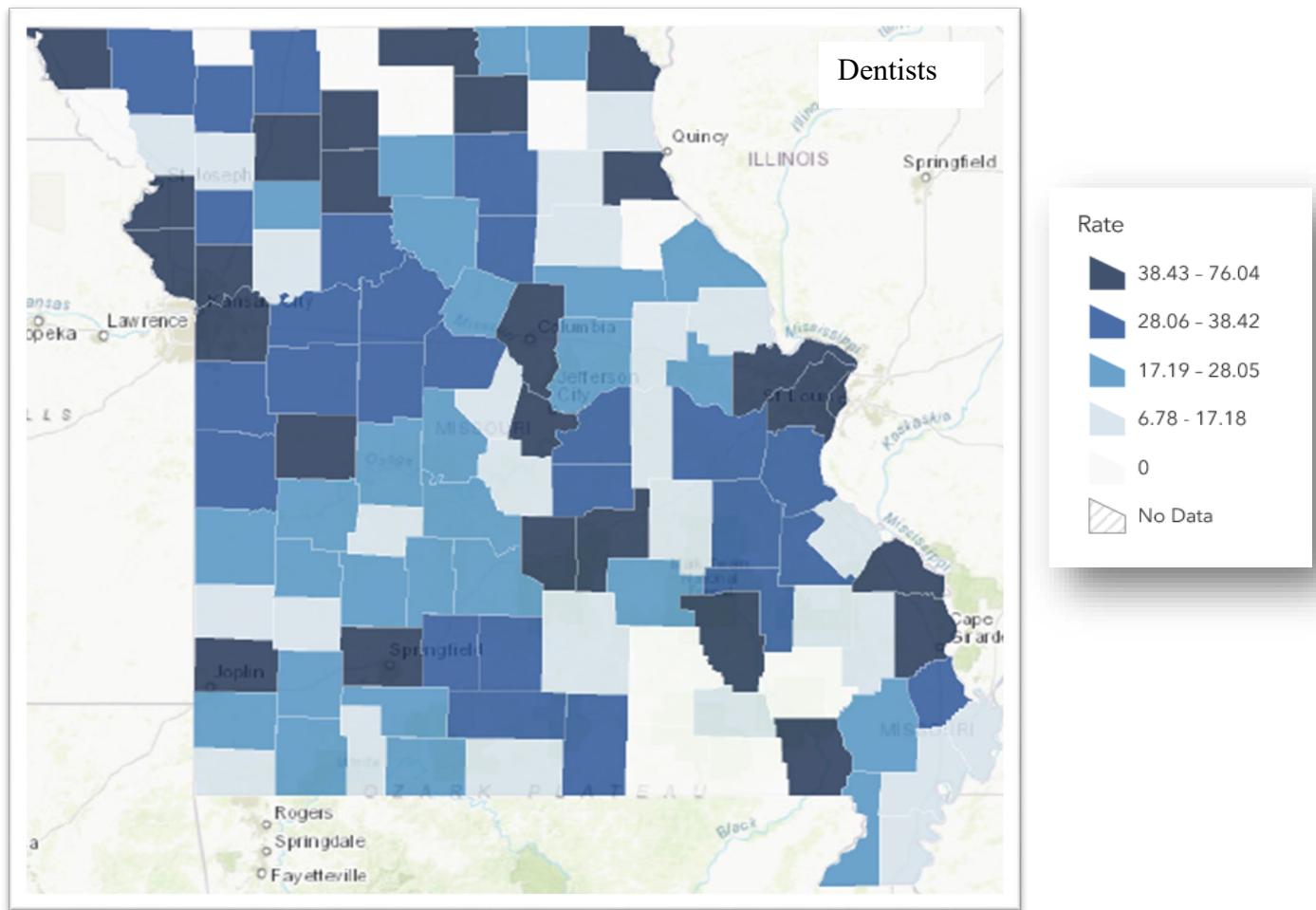


Figure 23: Missouri - Dental Workforce Map



Methodology

Health Indicator Selection

Multiple data sources and health indicators were considered for inclusion in this Primary Care Needs Assessment. The health indicators selected were assigned to one of two overarching primary care categories, health status and health care access used to structure the rankings.

Health Status Indicators

The health status group examines the current state of health in Missouri. The PCO examined several factors to determine which health status indicators to include in the Missouri Statewide PCNA 2020, which affect the status of health in Missouri.

These factors include:

Health Status Indicators
Life Expectancy
Years of Potential Life Lost
Self-Reported Health Status
Ever Breastfed
Total Mortality
Infant Mortality
Heart Disease Mortality
Cancer Mortality
Chronic Lower Respiratory Disease (CLRD) Mortality
Stroke Mortality
HIV/AIDS
Asthma
Obesity
Diabetes
Hypertension
High Cholesterol
Depressive Disorders
Smoking

Health Care Access Indicators

The health care access group examines the barriers between Missourians and their access to certain health care services. To determine which health care access indicators to include in the Needs Assessment, the PCO examined several factors which affect access to health care in Missouri. These factors include:

Health Care Access Indicators
Population Living in Poverty
Medicaid Enrollment
Medicare Enrollment
Uninsured
Population Living in Poverty
Population to Primary Care Provider Ratio
Population to Mental Health Care Provider Ratio
Population to Dentist Ratio
Mammogram Screenings
Pap Smear Screenings
Sigmoidoscopy and Colonoscopy Screenings
Preventable Hospitalizations
Dental Visit in the Past Year
Dental ER Visits
Inadequate Prenatal Care

The health status and health care access indicators provide information about the relative health of the populations in each county. Both indicator groups help identify where additional health resources are needed, to meet the needs of high-risk populations.

The PCO utilized County-level rates for each health indicator, providing data sources and ranking information for each. Data years vary by indicator as the most recent data available from each source was utilized in these rankings, and the frequency of updates varies by source. When appropriate, multiple years of data were combined for indicators with unstable rates for a large number of counties. An unstable rate is defined as a rate based on fewer than 20 cases. Age-adjusted rates were used rather than crude rates for indicators that are heavily influenced by the age structure of a population. These include deaths, hospitalizations, and ER visits, among others. For additional information on the statistical terms and concepts utilized in this report, please refer to Glossary in [Appendix A](#).

Ranking of Indicators

In order to better assess the need for additional health care resources in each county, the health status and health care access indicators were used to compare jurisdictions, ranking them on all the indicators. For each indicator, counties and St. Louis City were assigned a ranking from 1-115 based on their rates. For some indicators, such as life expectancy, the highest rate is the best rate. For others, such as infant mortality, the lowest rate is the best rate. This report is structured so that a rank of 1 always indicates the best rate, or lowest unmet health care need, regardless of whether the best rate is the highest or lowest value. The ranking of 115 always indicates the worst rate, or highest unmet health care needs.

Finally, the ranks from the health status and health care access categories were summed for each county, and these summed ranks were used to create overall primary care needs rankings.

Figure 18: Initial Ranks and Corresponding Quintile Points

Initial Ranks	Quintile Points
1-23	1
24-46	2
47-69	3
70-92	4
93-115	5

After the basic ranks were determined, quintile points were assigned to each indicator. Quintile points were summed across indicators to create the category rankings for health status and health care access. Please note that quintile points were assigned based on rank order of the counties and do not necessarily indicate any significant difference between counties. Refer to [Appendix E: Health Status Quintile Points and Rankings by County](#) and [Appendix F: Health Access Quintile Points and Rankings by County](#) for a complete listing of all quintile points assigned to each county per health indicator.

Health Status Indicators

Health status indicators examine the current state of health in Missouri. Selections for health status indicators were guided by several factors influencing the health of Missourians. The health status indicators identified in this report explore, evaluate, and quantify the following:

- ◆ The overall health of the Missouri population;
- ◆ Health-promoting practices;
- ◆ The prevalence of notable diseases and health conditions;
- ◆ Mortality rates; and
- ◆ Leading causes of death.

Life Expectancy

Life expectancy at birth “measures how long, on average, a newborn infant can expect to live if current death rates do not change”.³¹ Life expectancy at birth is a great indicator of the overall health of a population. Per the National Center for Health Statistics, the average U.S. life expectancy from birth in 2018 was 78.7 years.³² For Missouri, the average is 77 years.

Life expectancy is influenced by a number of variables, including, but not limited to: level of education, access to care, insurance, income, and race/ethnicity. Increases in life expectancy have the propensity to overshadow disparities in life expectancy.

It is important to note that “life expectancy decreased after 2014. A major contributor has been an increase in mortality from specific causes (e.g., drug overdoses, suicides, organ system diseases) among young and middle-aged adults of all racial groups.”³³

Life expectancy was calculated using birth, death, and population data from 2008 through 2018, and evaluated to measure life expectancy in Missouri. The ten counties ranked highest are all rural counties with the majority located in the Southeastern Region of the state. The highest ranking of this health indicator demonstrates the counties having the lowest life expectancy at birth.

Access information on life expectancy rates for all Missouri counties and Missouri’s seven Behavioral Risk Factor Surveillance System (BRFSS) Regions:

<http://www.health.mo.gov/data/lifeexpectancy/>.

Life Expectancy at Birth – Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	Pemiscot	Southeastern Region	Rural
2	114	Dunklin	Southeastern Region	Rural
3	113	Carter	Southeastern Region	Rural
4	112	New Madrid	Southeastern Region	Rural
5	111	Iron	Southeastern Region	Rural
6	110	Mississippi	Southeastern Region	Rural
7	109	Madison	Southeastern Region	Rural
8	109	Phelps	Central Region	Rural
9	108	St. Clair	Southwestern Region	Rural
10	106	Butler	Southeastern Region	Rural

Years of Potential Life Lost

Years of potential life lost (YPLL)³⁴ is a reliable health status indicator to evaluate the health of an area. The YPLL calculation estimates the number of life years lost to premature deaths. The age of 75 is used as benchmark for all YPLL calculations. YPLL is one of the standard health indicators used at federal and state levels. YPLL emphasizes the deaths of younger residents.

Examples include, at an individual level:

- ◆ A 15 year old who dies in a traffic accident would receive an YPLL of 58.5 ($75 - 16.5 = 58.5$) since in MICA they would be assigned to the 15-17 age group.³⁴
- ◆ A 73 year old person who dies of a heart attack would receive an YPLL of 2.5 ($75 - 72.5$). Any person who dies at age 75 or above is not considered to have died prematurely and would not be included in the YPLL calculations.³⁴

The YPLL rates included in this report reflect the years of potential life lost per 100,000 residents and are calculated using death and population data from 2018 for residents under the age of 75.

Rural counties have the greatest unmet need demonstrating a higher rate of YPLL, as a result of an increased number of premature deaths, as compared to urban counties (9/10). The highest ranking demonstrates the greatest unmet need/greatest YPLL.

- ◆ YPLL totals and rates for Missouri and its 115 counties are available at <http://www.health.mo.gov/data/ypll/>.

Years of Potential Life Lost – Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	Worth	Northwestern Region	Rural
2	114	Ripley	Southeastern Region	Rural
3	113	Putnam	Northeastern Region	Rural
4	112	Mississippi	Southeastern Region	Rural
5	111	St. Louis City	St. Louis Metro	Urban
6	110	Iron	Southeastern Region	Rural
7	109	Pemiscot	Southeastern Region	Rural
8	108	Washington	Central Region	Rural
9	107	Shelby	Northeastern Region	Rural
10	106	Hickory	Southwestern Region	Rural

Self-Reported Health Status

Since 1957, the National Center for Health Statistics (NCHS) has been monitoring the health of the U.S. population through the collection and analysis of data on a broad range of health topics. The data is collected via the National Health Interview Survey (NHIS).³⁵ The 2018 NHIS shows that, of participating adults aged 18 and over, 12.7% self-reported their health as "fair" or "poor".³⁶

Fair or Poor Self-Reported Health Status rates are age-adjusted percentages from the 2016 County-Level Study survey of non-institutionalized Missouri resident adults ages 18 and older.

Based on the 2016 County-Level Study survey data, the ten counties ranked as having the greatest unmet need are all rural counties.

Fair or Poor Self-Reported Health Status is derived from "fair" or "poor" responses to the following question on the County-Level Study survey: "Would you say that in general your health is excellent, very good, good, fair, or poor?"

Self-Reported Health Status – Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	Washington	Central Region	Rural
2	114	Pemiscot	Southeastern Region	Rural
3	113	Stoddard	Southeastern Region	Rural
4	112	St. Clair	Southwestern Region	Rural
5	111	Carter	Southeastern Region	Rural
6	110	Pulaski	Central Region	Rural
7	109	Ripley	Southeastern Region	Rural
8	108	Wayne	Southeastern Region	Rural
9	107	Clark	Northeastern Region	Rural
10	106	Iron	Southeastern Region	Rural

Ever Breastfed

According to *Healthy People 2020*, “Breast milk is widely acknowledged to be the most complete form of nutrition for most infants, with a range of benefits for their health, growth, immunity, and development.”³⁷ Breast fed babies have healthier outcomes resulting from the nutritional value and bonding enabled from breastfeeding.

According to the U.S. Department of Health and Human Services, National Institute of Health (NIH), “research shows that breastfeeding offers many health benefits for infants and mothers, as well as potential economic and environmental benefits for communities. Breastfeeding provides essential nutrition. Among its other known health benefits are some protection against common childhood infections and better survival during a baby's first year, including a lower risk of Sudden Infant Death Syndrome (SIDS).”³⁸

From 2013-2017, Ever Breastfed rates reflect the number of Missouri Women, Infant, and Children (WIC) Program participants who had ever been breastfed prior to or on the WIC certification date, divided by the number of 2013-2017 WIC participants with known ever breastfed status as of the WIC certification date. Rural counties demonstrate the greatest unmet ever breastfed health status needs and are breastfed less than those in urban areas.

Ever Breastfed rates were calculated using data provided by the Missouri WIC Program for use in the WIC Infant MICA. Rates for years prior to 2009 are available through the WIC MICA³⁹. Rates for years 2009 and later are available by request from the Missouri Department of Health and Senior Services – Bureau of Health Care Analysis and Data Dissemination.

Ever Breastfed – Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	Pemiscot	Southeastern Region	Rural
2	114	Dunklin	Southeastern Region	Rural
3	113	Perry	Southeastern Region	Rural
4	112	Mississippi	Southeastern Region	Rural
5	111	New Madrid	Southeastern Region	Rural
6	110	Clark	Northeastern Region	Rural
7	109	Carter	Southeastern Region	Rural
8	108	Cape Girardeau	Southeastern Region	Urban
9	107	Holt	Northwestern Region	Rural
10	106	Gasconade	Central Region	Rural

Total Mortality

According to *75 Years of Mortality in the United States, 1935-2010*, “reductions in deaths and death rates are often used as an indicator of the success of public health initiatives to improve the health and well-being of the U.S. population.”⁴⁰ The total mortality health indicator determines the counties experiencing declines in death rates, which demonstrates the success of health and social systems put in place, and initiatives and projects improving health outcomes. The counties with the higher incidents of death rates were rural as compared to urban counties representing that rural counties have the greatest unmet health needs in Missouri.

Total mortality rates are reported per 100,000 residents and were obtained from the Death MICA⁴¹, which contains data from Missouri resident death certificates. Total mortality rates are age-adjusted to the 2000 U.S. Standard Population and represent the 2008-2018 time period. As shown below, all ten of the counties identified as having the greatest unmet need for this indicator are rural counties, with the majority of them being located in the Southeastern Region.

Using level of education as an example, in the 2015 scholarly study, *The Effect of Educational Attainment on Adult Mortality in the United States*, the authors write, “Highly educated adults in the U.S. have lower yearly mortality rates than less-educated people in every age, gender, and racial/ethnic subgroup of the population.”⁴² Understanding how important education is to a person’s health, Missouri ORHPC is building partnerships to evaluate social systems to address educational inequities.

Total Mortality – Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	Pemiscot	Southeastern Region	Rural
2	114	Dunklin	Southeastern Region	Rural
3	113	Iron	Southeastern Region	Rural
4	112	Mississippi	Southeastern Region	Rural
5	111	New Madrid	Southeastern Region	Rural
6	110	Madison	Southeastern Region	Rural
7	109	Carter	Southeastern Region	Rural
8	108	Ripley	Southeastern Region	Rural
9	107	Butler	Southeastern Region	Rural
10	106	Washington	Central Region	Rural

Infant Mortality

According to the Center for Disease Control and Prevention (CDC), “infant mortality is the death of an infant before his or her first birthday. The infant mortality rate is the number of infant deaths for every 1,000 live births. In addition to giving us key information about maternal and infant health, the infant mortality rate is an important marker of the overall health of a society.”⁴³

In 2018, the cumulative infant mortality rate in Missouri was 6.3, which is higher than the national infant mortality rate of 5.7 deaths per 1,000 live births. **Error! Bookmark not defined.** However, when comparing Missouri rural and urban infant mortality rates, infant mortality rates are statistically higher in rural areas. Per the Health in Rural Health Biennial Report 2018-2019, “for the years 2007-2017, rural counties had an infant mortality rate of 697.33 (per 100,000) while urban counties recorded a rate of 651.44.”⁶ Missouri PCO recognizes that allocation of resources is imperative to address and resolve Missouri’s problematic infant mortality rate.

The following table demonstrates that nine of the ten counties identified with the greatest unmet

health needs relating to infant mortality were rural counties. The ranking is based on the infant mortality rates obtained from the Death MICA. This data is reported per 100,000 resident live births and contains data from Missouri resident death certificates. Infant mortality rates are age-specific for residents under one year of age and represent the 2008-2018 time period.

Infant Mortality – Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	Scotland	Northeastern Region	Rural
2	114	Greene	Southwestern Region	Urban
3	113	Caldwell	Kansas City Metro	Rural
4	112	Webster	Southwestern Region	Rural
5	111	Stoddard	Southeastern Region	Rural
6	110	Washington	Central Region	Rural
7	109	Howard	Central Region	Rural
8	108	Ralls	Northeastern Region	Rural
9	107	Ripley	Southeastern Region	Rural
10	106	Lafayette	Kansas City Metro	Rural

Heart Disease Mortality

Heart disease remains the leading cause of death in both Missouri and the U.S. overall.^{6,44} According to the Mayo Clinic, heart disease is a range of conditions that affect the heart, such as heart arrhythmias, blood vessel disease, heart valve disease, heart defects, disease of the heart muscle, and heart infections.⁴⁵

Heart disease mortality rates are reported per 100,000 residents and were obtained from the Death MICA, which contains data from Missouri resident death certificates. Heart disease mortality rates are age-adjusted to the 2000 U.S. Standard Population and represent the 2008-2018 time period.

Mortality by cause is determined using the underlying cause of death on the death certificate. The heart disease mortality indicator utilizes International Classification of Diseases, Tenth Revision (ICD-10) codes I00-I09, I11, I13, and I20-I51. This category of "heart disease" is one of the National Center for Health Statistics' standard categories for ranking the leading causes of death. In addition to "ischemic heart disease," some of the causes included are: rheumatic heart disease, hypertensive heart disease, pulmonary embolism, various valve disorders, cardiomyopathy, atrial fibrillation, and congestive heart failure.

Heart disease is the leading cause of death for all Missourians living in both rural and urban areas. However, heart disease death rates have been declining in Missouri for several decades. Between 2007 and 2017, there was a 12% decrease in heart disease deaths statewide. But then again, a citizen living in a rural Missouri county during the years 2007-2017 was 20% more likely to die of heart disease than one who lived in an urban county. Yet this decrease is largely attributable to fewer deaths in urban areas (14% decrease). Rural areas saw a much smaller reduction (9% decrease).

Missouri's heart disease mortality (199.32) is higher than the Healthy People 2020 target of 103.4 deaths. The rural rate (222.18) is more than double the national goal and far exceeds the statewide rate. For example, a rural male in Missouri is 16% more likely to die of heart disease than an urban male and over 51% more likely than a female living in a rural Missouri community.

Heart Disease Mortality – Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	Washington	Central Region	Rural
2	114	Pemiscot	Southeastern Region	Rural
3	113	Mississippi	Southeastern Region	Rural
4	112	Oregon	Southeastern Region	Rural
5	111	Crawford	St. Louis Metro	Rural
6	110	Iron	Southeastern Region	Rural
7	109	New Madrid	Southeastern Region	Rural
8	108	Ripley	Southeastern Region	Rural
9	107	Dunklin	Southeastern Region	Rural
10	106	Carroll	Northwestern Region	Rural

Cancer Mortality

The National Cancer Institute defines cancer as a term that describes diseases where abnormal cells divide uncontrollably and can invade nearby tissues; and also specifies that there are “more than 100 types of cancer”.⁴⁶ Additionally, cancer is the second leading cause of death in both Missouri and the U.S. overall.^{6,47}

Cancer mortality rates are reported per 100,000 residents and were obtained from the Death MICA, which contains data from Missouri resident death certificates. Cancer mortality rates are age-adjusted to the 2000 U.S. Standard Population and represent the 2008-2018 time period.

Mortality by cause is determined using the underlying cause of death on the death certificate. The cancer mortality indicator utilizes ICD-10 codes C00-C97 and may also be referred to as mortality from malignant neoplasms. This indicator includes leukemia and cancers of various organs but excludes benign neoplasms, carcinoma in situ, and neoplasms of uncertain behavior.

Cancer is the second leading cause of death for all Missourians living in both rural and urban areas. The rural death rate from cancer (188.04) is significantly higher than the urban cancer death rate (173.62). However, data shows significant downward trends in cancer mortality for both rural and urban groups of Missourians. From 2007 to 2017, the rural cancer death rate declined by 11%. Missouri’s rural cancer death rate of 188.04 significantly exceeds the Healthy People 2020 target rate of 161.4. Rural males have the highest rate of death from cancer, significantly higher than the urban male rate. Rural females are at a significantly higher risk of cancer death (188.04) than urban females (173.62). The 10 counties in Missouri with the highest cancer death rates are all rural counties geographically clustered in the southeastern portion of the state.

Cancer Mortality – Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	Carter	Southeastern Region	Rural
2	114	Mississippi	Southeastern Region	Rural
3	113	Dunklin	Southeastern Region	Rural
4	112	Pemiscot	Southeastern Region	Rural
5	111	Ripley	Southeastern Region	Rural
6	110	Wayne	Southeastern Region	Rural
7	109	Madison	Southeastern Region	Rural
8	108	New Madrid	Southeastern Region	Rural
9	107	St. Francois	Southeastern Region	Rural
10	106	Benton	Southwestern Region	Rural

Chronic Lower Respiratory Disease (CLRD) Mortality

The term CLRD refers to a group of conditions that affect the lungs, which includes asthma, pulmonary hypertension, occupational lung diseases, and chronic obstructive pulmonary disease (COPD) that encompasses emphysema and chronic bronchitis.⁴⁸ CLRD is the third leading cause of death in Missouri and fourth leading death in the U.S.^{6,49}

CLRD mortality rates are reported per 100,000 residents and were obtained from the Death MICA, which contains data from Missouri resident death certificates. CLRD mortality rates are age-adjusted to the 2000 U.S. Standard Population and represent the 2008-2018 time period.

Mortality by cause is determined using the underlying cause of death on the death certificate. The CLRD mortality indicator utilizes ICD-10 codes J40-J47 and includes deaths from COPD and allied conditions. This category is called "chronic lower respiratory diseases" in the National Center for Health Statistics' current listing of leading causes of death. Also included are bronchitis (unless it is specified as acute bronchitis), emphysema, asthma, bronchiectasis, and chronic airway obstruction not elsewhere classified. The vast majority of the deaths in this category are attributed to "chronic airway obstruction not elsewhere classified."

Rural/Urban Comparison:

- ◆ The rural CLRD death rate was 34% higher than urban.
- ◆ The CLRD death rates for rural Missouri counties had a significant increase of 16.3% between 2007 (55.25) and 2017 (64.24).
- ◆ The gap between rural and urban CLRD mortality rates has widened. Rural Missourians are now 51% more likely to die from CLRD as compared to urban Missourians.
- ◆ Rural counties comprise the entire top ten CLRD death rates in Missouri, for 2007-2017.
- ◆ The rural counties with the highest risk of death from CLRD are mostly in the southeastern region of the state, with eight of the ten rural counties with highest rates in that region.

CLRD Mortality – Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	Iron	Southeastern Region	Rural
2	114	Dunklin	Southeastern Region	Rural
3	113	Stoddard	Southeastern Region	Rural
4	112	Wayne	Southeastern Region	Rural
5	111	Linn	Northeastern Region	Rural
6	110	Carter	Southeastern Region	Rural
7	109	Clinton	Kansas City Metro	Rural
8	108	Pemiscot	Southeastern Region	Rural
9	107	New Madrid	Southeastern Region	Rural
10	106	Laclede	Central Region	Rural

Stroke Mortality

According to the Mayo Clinic website, "a stroke occurs when the blood supply to part of your brain is interrupted or reduced, prevent brain tissue from getting oxygen and nutrients."⁵⁰ Stroke is the fifth leading cause of death in Missouri and the U.S.^{6,51}

Stroke mortality rates are reported per 100,000 residents and were obtained from the Death MICA, which contains data from Missouri resident death certificates. Stroke mortality rates are age-adjusted to the 2000 U.S. Standard Population and represent the 2008-2018 time period.

Mortality by cause is determined using the underlying cause of death on the death certificate. The stroke mortality indicator utilizes ICD-10 codes I60-I69 and includes deaths from cerebrovascular disease (stroke), whether due to bleeding or to blockage of arteries in the brain. This indicator also includes deaths due to late effects of strokes.

- ◆ Rural counties have the greatest unmet need demonstrating a higher rate of stroke mortality, as compared to urban counties (9/10).
- ◆ The rural counties with the highest rate of death from stroke are spread geographically around the state, but there is a cluster of six counties with high rates in the southeast section of the state (Butler, Carter, Dunklin, Iron, Mississippi, and Pemiscot Counties).

Stroke Mortality – Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	Dunklin	Southeastern Region	Rural
2	114	Daviess	Northwestern Region	Rural
3	113	Iron	Southeastern Region	Rural
4	112	Phelps	Central Region	Rural
5	111	Lewis	Northeastern Region	Rural
6	110	Carter	Southeastern Region	Rural
7	109	Mississippi	Southeastern Region	Rural
8	108	Buchanan	Northwestern Region	Urban
9	107	Henry	Southwestern Region	Rural
10	106	Butler	Southeastern Region	Rural

HIV/AIDS Health Indicator

AIDS (Acquired Immunodeficiency Syndrome) is the last stage of infection from HIV (Human Immunodeficiency Virus). Although the disease can be treated with antiretroviral therapy to slow the progression of the virus, there is no cure.⁵² The antiretroviral treatments have increased the number of Missouri residents living with HIV/AIDS.

The HIV/AIDS rates utilized in this assessment are living HIV/AIDS case rates per 100,000 residents and were calculated using the numerators and denominators described below. Numerators were provided by the Bureau of Reportable Disease Informatics and represent the number of known living residents with HIV/AIDS, as of 2017. Data for persons diagnosed in Missouri correctional facilities are included in the statewide rate, since most of these individuals were likely Missouri residents prior to incarceration.

However, these data are not included in the county rates. This is based on the fact that these individuals, especially those in the state prison system, are often incarcerated in a different location than where they were residing (and were likely infected) prior to imprisonment. If included among the cases from the area where imprisoned at the time of diagnosis, it would distort the picture of the epidemic in that area. Individuals diagnosed at federal correctional facilities in Missouri are not included in any data presented.

The denominator for the HIV/AIDS rate calculation is the 2017 population estimate from MICA.

HIV/AIDS – Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	St. Louis City	St. Louis Metro	Urban
2	114	Jasper	Southwestern Region	Urban
3	113	St. Louis County	St. Louis Metro	Urban
4	112	Mississippi	Southeastern Region	Rural
5	111	Boone	Central Region	Urban
6	110	Grundy	Northwestern Region	Rural
7	109	Barton	Southwestern Region	Rural
8	108	Platte	Kansas City Metro	Urban
9	107	Clay	Kansas City Metro	Urban
10	106	Pemiscot	Southeastern Region	Rural

Asthma

Asthma is prevalent in Missouri, affecting approximately 10% of adult Missouri residents.⁵³ Asthma affects the lungs and causes repeated episodes of wheezing, breathlessness, chest tightness, and coughing. Although asthma cannot be cured, controlling it can successfully reduce and prevent asthma attacks.⁵⁴ In 2018 alone, 83 Missouri residents died from this disease, which also caused 5,855 Missouri resident hospitalizations for a total initial cost of \$105,014,587.^{55,56} This was equivalent to the cost of \$17,936 per hospitalization.

Asthma rates evaluated are age-adjusted percentages from the 2016 County-Level Study survey of non- institutionalized Missouri resident adults ages 18 and older.

Asthma rates are derived from self-reporting "yes" responses to two questions:

- ◆ “Have you ever been told by a doctor, nurse, or other health professional that you had asthma?” AND
- ◆ “Do you still have asthma?”

Asthma – Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	Mississippi	Southeastern Region	Rural
2	114	Reynolds	Southeastern Region	Rural
3	113	Wright	Southeastern Region	Rural
4	112	Pemiscot	Southeastern Region	Rural
5	111	Callaway	Central Region	Rural
6	110	Shannon	Southeastern Region	Rural
7	109	Barton	Southwestern Region	Rural
8	108	Buchanan	Northwestern Region	Urban
9	107	Barry	Southwestern Region	Rural
10	106	Harrison	Northwestern Region	Rural

Obesity

Missouri is one of the heaviest states in the country, with 35% of adults obese and 31% of children ages 10-17 overweight or obese.⁵⁷ Obesity has been identified as a risk factor for many serious diseases and conditions, including coronary heart disease, high blood pressure (hypertension),

stroke, type 2 diabetes, metabolic syndrome, cancer, osteoarthritis, and sleep apnea.⁵⁸ Healthy weights are associated with healthy outcomes. Furthermore, the rural Missouri population is heavier in comparison to the urban population.

- Only 1 out of 3 (37.4%) rural citizens live in a neighborhood with sidewalks. In urban environments, it is nearly the inverse, with 64.7% of respondents reporting that their neighborhood featured sidewalks, a statistically meaningful difference.
- Most rural Missourians report that they do not engage in physical activities or exercise outside of their employment.
- Rural Missourians have significantly higher rates for obesity compared to urban Missourians.
- Using self-reported height and weight, more than one-third of rural Missouri adults are obese (33.7%), compared to 29.7% of urban Missourians.

Obesity rates are age-adjusted percentages from the 2016 County-Level Study survey of non-institutionalized Missouri resident adults ages 18 and older.

Obesity is based on a body mass index (BMI) of 30 or greater and is derived from self-reported responses to the two questions:

- “About how much do you weigh without shoes?” AND
- “About how tall are you without shoes?”

Obesity – Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	Schuylerville	Northeastern Region	Rural
2	114	Hickory	Southwestern Region	Rural
3	113	Knox	Northeastern Region	Rural
4	112	Ralls	Northeastern Region	Rural
5	111	Shelby	Northeastern Region	Rural
6	110	Iron	Southeastern Region	Rural
7	109	Bates	Kansas City Metro	Rural
8	108	Stoddard	Southeastern Region	Rural
9	107	Linn	Northeastern Region	Rural
10	106	Lawrence	Southwestern Region	Rural

Diabetes

Of the Missouri population age 18 and older, 10% reported being told by a health professional that they suffer from diabetes; this is slightly lower than the 11% national average. Diabetes is the seventh leading cause of death in Missouri.⁶ Diabetes is defined by the CDC as a condition in which the body does not properly process food for use as energy as a result of the body not making enough insulin, or its inability to use its own insulin, to help get glucose into the cells of the body. This causes a buildup of sugars in the blood that can result in serious health complications such as heart disease, blindness, kidney failure, and lower-extremity amputations.⁵⁹

According to the *National Diabetes Fact Sheet: National Estimates and General Information on Diabetes and Prediabetes in the United States*, “Diabetes is the leading cause of kidney failure, non-traumatic lower-limb amputations, and new cases of blindness among adults in the U.S.; a major cause of heart disease and stroke.”⁶⁰ Additionally, a lack of access to care and health education makes it more difficult to effectively prevent and control diabetes. Rural communities have higher rates for many risk factors associated with diabetes such as obesity, older age, and physical inactivity.

Rural/Urban Comparison:

- ◆ The diabetes death rate was significantly higher in rural counties (22.61) than in urban counties (19.00).
- ◆ Since 2009, Missouri's rural diabetes death rates have shown an upward trend, while the death rates for urban counties have declined slightly.
- ◆ In 2017, the rural-urban disparity was the largest in this timeframe, with rural rates 34% higher (25.03 versus 18.67).

The Missouri counties of Butler, Wayne, and Madison have the highest diabetes death rates statewide. Diabetes rates are age-adjusted percentages from the 2016 County-Level Study survey of non- institutionalized Missouri resident adults ages 18 and older.

Diabetes rates are derived from "yes" responses to the following question:

- ◆ "Have you ever been told by a doctor that you have diabetes?"
 - ◆ Females who responded "yes" to having been told they had diabetes only when pregnant and those that were told they had pre-diabetes or borderline diabetes are not included as having diabetes.

Diabetes – Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	Ripley	Southeastern Region	Rural
2	114	Mississippi	Southeastern Region	Rural
3	113	Pemiscot	Southeastern Region	Rural
4	112	Iron	Southeastern Region	Rural
5	111	Scott	Southeastern Region	Rural
6	110	Atchison	Northwestern Region	Rural
7	109	Randolph	Northeastern Region	Rural
8	108	New Madrid	Southeastern Region	Rural
9	107	Stoddard	Southeastern Region	Rural
10	106	DeKalb	Northwestern Region	Rural

Hypertension

Hypertension, known as high blood pressure, is a common disease which often leads to or exacerbates heart disease.⁶¹ This is especially relevant for Missourians for whom heart disease remains the number one cause of death. Of the Missouri population age 18 and older, 31% reported being told by a health professional that they suffer from high blood pressure; this is slightly lower than the 33% national average.⁶²

Some people with hypertension do not experience the commonly associated symptoms for many years; cases like these have led to hypertension often being referred to as the "silent killer".⁶³ Missourians face many risk factors associated with hypertension and high incidents in rural areas. High blood pressure damages arteries and veins and raises the risk for stroke, kidney failure, heart disease, and heart attack.

Risk factors associated with hypertension include, but are not limited to, age, race, less physical lifestyles, and using tobacco.⁶¹ Smoking intensifies high blood pressure making blood vessels narrow and heart beat faster, which raises blood pressure.

Hypertension – Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	Washington	Central Region	Rural
2	114	Pemiscot	Southeastern Region	Rural
3	113	Stoddard	Southeastern Region	Rural
4	112	St. Clair	Southwestern Region	Rural
5	111	Carter	Southeastern Region	Rural
6	110	Pulaski	Central Region	Rural
7	109	Ripley	Southeastern Region	Rural
8	108	Wayne	Southeastern Region	Rural
9	107	Clark	Northeastern Region	Rural
10	106	Iron	Southeastern Region	Rural

High Cholesterol

Of the Missouri population age 18 and older, 34% reported being told by a health professional that they suffer from high cholesterol, while the national average is 33%. According to the Mayo Clinic, high cholesterol can be inherited, but it is often the result of unhealthy lifestyle choices, which makes it preventable and treatable.⁶⁴ High cholesterol means that there is too much LDL (low-density lipoprotein) cholesterol. Treatment is imperative as high cholesterol can lead to severe health problems. Persons typically experience no symptoms, which require regular primary care visits to detect incidents and treatment of high cholesterol.

Having high cholesterol can cause fatty deposits to develop in the blood vessels and when these deposits grow it becomes difficult for enough blood to flow through the arteries⁶⁴, increasing a person's risk of developing heart disease and having a stroke.⁶⁵ However, heart disease is the leading cause of death for Missouri residents, while stroke is the fifth leading cause of death.⁶

High Cholesterol – Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	Iron	Southeastern Region	Rural
2	114	Maries	Central Region	Rural
3	113	Washington	Central Region	Rural
4	112	Jefferson	St. Louis Metro	Urban
5	111	Stoddard	Southeastern Region	Rural
6	110	Gasconade	Central Region	Rural
7	109	Worth	Northwestern Region	Rural
8	108	Polk	Southwestern Region	Rural
9	107	Knox	Northeastern Region	Rural
10	106	Schuylerville	Northeastern Region	Rural

Depressive Disorders

Of the Missouri population age 18 and older, 23% reported being told by a health professional that they suffer from a depressive disorder. This is slightly higher than the national average of 20%. According to *The Merck Manual Professional Edition*, “Depressive disorders are characterized by sadness severe enough or persistent enough to interfere with function and often by decreased interest or pleasure in activities.”⁶⁶ According to the National Alliance on Mental Illness, “Suicide is the 10th leading cause of death in the U.S.”⁶⁷ It is also the 10th leading cause of death for Missouri residents.⁶

In 2019, nearly 12 in every 100 Missourians delayed getting necessary mental health care because

they could not get an appointment soon enough, could not find a mental health professional to see them, could not take off work, or did not have transportation. Nearly 5% of all Missourians reported that cost was a major barrier to seeing a mental health professional when needed. Furthermore, Missouri rural areas experience higher incidents of depressive disorders as compared to urban areas. The ten counties with the greatest unmet needs related to the depressive disorder health indicator are rural.

Depressive disorder rates are age-adjusted percentages from the 2016 County-Level Study survey of non-institutionalized Missouri resident adults ages 18 and older.

Depressive disorder rates are derived from “yes” responses to the following question:

- “Has a doctor, nurse, or other health professional ever said that you have a depressive disorder, including depression, major depression, dysthymia, or minor depression?”

Depressive Disorders – Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	Wayne	Southeastern Region	Rural
2	114	Benton	Southwestern Region	Rural
3	113	Mississippi	Southeastern Region	Rural
4	112	Christian	Southwestern Region	Rural
5	111	New Madrid	Southeastern Region	Rural
6	110	Stoddard	Southeastern Region	Rural
7	109	Carter	Southeastern Region	Rural
8	108	Stone	Southwestern Region	Rural
9	107	Iron	Southeastern Region	Rural
10	106	St. Clair	Southwestern Region	Rural

Smoking

According to the CDC, “cigarette smoking is the leading cause of preventable death in the U.S.” and “smokers are more likely than nonsmokers to develop heart disease, stroke, and lung cancer.”⁶⁸ Smoking harms every part of the body, every organ and is responsible for nearly one in five deaths in the U.S. Smoking can also cause lung disease, chronic obstructive pulmonary disease, emphysema, chronic bronchitis, and increases the risks for tuberculosis, eye diseases, immune system problems, and rheumatoid arthritis.

An estimated 109,798 Missouri resident deaths during the 2008-2018 time period are considered to be smoking attributable.⁶⁹ Based on 2019 data, Missouri ranked 41 in the nation for percentage of adults who are current smokers.⁷⁰ Of the Missouri population age 18 and older, 20% reported smoking at least 100 cigarettes in their lifetime and currently smoke daily or some days; this is higher than the 16% national average.

Smoking rates are age-adjusted percentages from the 2016 County-Level Study survey of non-institutionalized Missouri resident adults ages 18 and older.

Smoking rates are derived from "yes" responses to the question:

- “Have you smoked at least 100 cigarettes in your entire life?” AND
- “Every day” or “some days” responses to the question: “Do you now smoke cigarettes every day, some days, or not at all?”

Smoking – Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	Hickory	Southwestern Region	Rural
2	114	Carter	Southeastern Region	Rural
3	113	Montgomery	Central Region	Rural
4	112	Wayne	Southeastern Region	Rural
5	111	Stone	Southwestern Region	Rural
6	110	Schuylerville	Northeastern Region	Rural
7	109	Ralls	Northeastern Region	Rural
8	108	Ripley	Southeastern Region	Rural
9	107	Benton	Southwestern Region	Rural
10	106	Washington	Central Region	Rural

Health Access Indicators

Health care access indicators examine barriers experienced by Missourians seeking to access health care services. Selections for health care access indicators were guided by several factors presenting health care access barriers for Missourians. The health care access indicators identified in this report explore the following:

- ◆ Socioeconomic factors;
- ◆ The usage rate of preventative health services;
- ◆ The usage rate of specific health screenings; and
- ◆ Shortages of primary care providers.

Medicaid Enrollment

Per the Centers for Medicare and Medicaid Services (CMS), “Medicaid is a joint federal and state program that helps with medical costs for some people with limited income and resources. Medicaid also offers benefits not normally covered by Medicare, like nursing home care and personal care services.”⁷¹ “It covers children, the aged, blind, and/or disabled and other people who are eligible to receive federally assisted income maintenance payments.”⁷²

Medicaid enrollment rates represent the percentage of residents actively enrolled in all categories of Medicaid, which in Missouri is also referred to as MO HealthNet. Active enrollment does not necessarily mean that services were used during a particular month.

Medicaid enrollment rates were calculated using the number of actively enrolled residents in 2018, as the numerator and 2018 population estimates from the U.S. Census Bureau as the denominator. The number of actively enrolled residents was obtained from the Medicaid Records MICA.^{73,74}

In 2020, the Missouri Medicaid expansion amendment passed amending the State constitution, making Missouri the 38th state to adopt. This amendment will provide Medicaid coverage to individuals aged 19 to 64, who qualify for MO HealthNet Division (MHD) services and who have an income that is 133% of the federal poverty level or below, or up to 138% of the federal poverty level, based on family size.⁷⁵

Expansion includes coverage for childless adults, a population that has previously not been eligible for Medicaid in Missouri. Approximately 230,000 additional Missourians are expected to gain health insurance through MHD, as a result of the expansion. The language of the constitutional amendment requires the State of Missouri to implement Medicaid expansion by July 2021.

Medicaid Enrollment – Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	Dent	Central Region	Rural
2	114	Schuyler	Northeastern Region	Rural
3	113	Scotland	Northeastern Region	Rural
4	112	Sullivan	Northeastern Region	Rural
5	111	Ozark	Southeastern Region	Rural
6	110	Pemiscot	Southeastern Region	Rural
7	109	Cedar	Southwestern Region	Rural
8	108	Greene	Southwestern Region	Urban
9	107	Texas	Southeastern Region	Rural
10	106	Carroll	Northwestern Region	Rural

Rural hospitals often have higher percentages of Medicaid patients, compared to urban areas, creating a potential financial risk that may contribute to financial instability and difficulty sustaining operations. Ultimately, this leads to fewer healthcare options for rural populations, which is a serious area of concern, as increased access to resources is correlated with better health outcomes.

According to the Missouri Foundation for Health *Missouri Medicaid Basics 2020*, Medicaid provides access to medical treatment for over 850,000 Missourians or 1 out of every 7 Missourians.

According to the CMS, June 2020, Medicaid & Children's Health Insurance Program (CHIP) Enrollment Data Highlights, nationally, Medicaid and the CHIP provide public health insurance coverage to over 74.6 million low-income Americans, including working families, children, older adults, and individuals with physical and mental disabilities. In June 2020, Missouri's Medicaid Division, MHD covered 533,202 low-income children and 97,302 low-income custodial parents and pregnant women. The vast majority of covered adults in families with children are women. Pregnant women who meet certain income criteria are also eligible for coverage during their pregnancy and postpartum. In 2020, an average of 23,363 women received insurance benefits under the MHD for Pregnant Women Program.

In 2020, children represent the largest demographic group served by MHD: 61% of all enrollees are under the age of 19. However, 497,104 low-income Missouri children had health insurance coverage through the CHIP program, representing 57% of all MHD recipients. Although families and children constitute 73% of all MHD enrollees, this population uses only 35% of all Medicaid resources. By contrast, older adults and people with disabilities comprise 27% of MHD enrollees but account for 65% of all expenditures. The national average for Medicaid enrollees is approximately 20% compared to 15% of Missouri's population covered by Medicaid and CHIP.

The MHD for the Aged, Blind, or Disabled (MHABD) provides Medicaid coverage to individuals who meet the requirements of the Old Age Assistance, Permanently and Totally Disabled, or Aid to the Blind programs. These individuals account for nearly 27% of all MHD enrollees. Individuals who are over 65 or disabled and have incomes up to 85% of the federal poverty level (FPL) qualify automatically. Persons who are blind with incomes up to 100% of FPL automatically qualify for MHD. In June 2020, more than 30% of individuals covered under MHABD were eligible under the Old Age Assistance program requirements (73,445 persons), while only about 0.5% of individuals (1,256 persons) in the MHABD program were eligible under the Aid to the Blind program.

Individuals with disabilities accounted for 65% of participants in the MHABD program (154,710 persons).

Missouri counties in the southeast region have the highest percent of population enrolled in MHD. In March 2020, the DHSS declared the Coronavirus (COVID-19) pandemic a public health emergency, resulting in more people being eligible for Medicaid and seeking coverage through state Medicaid programs. MHD saw a sharp increase in enrollment. From January to September 2020, enrollment increased by over 140,000 individuals. Coverage of parents increased by 24.2%, and pregnant women coverage increased by 76.6%.

Medicare Enrollment

According to the CMS, “Medicare is the federal health insurance program for people who are 65 or older, certain younger people with disabilities, and people with End-Stage Renal Disease (permanent kidney failure requiring dialysis or a transplant, sometimes called ESRD).”⁷⁶

In 2019 1,227,462 individuals were enrolled in Medicare, which equates to 20% of the Missouri population.⁷⁷ Medicare enrollment rates represent the percentage of residents enrolled in Medicare. These rates include both aged and disabled participants with hospital and/or supplemental medical insurance.

Medicare enrollment rates were calculated using the total number of Medicare recipients on December, 2018, from the Centers for Medicare and Medicaid Services and 2018 population estimates from the U.S. Census Bureau.^{78,74} The number of Missouri recipients was calculated by summing the county totals.

Medicare Enrollment – Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	St. Louis City	St. Louis Metro	Urban
2	114	Benton	Southwestern Region	Rural
3	113	Hickory	Southwestern Region	Rural
4	112	Ozark	Southeastern Region	Rural
5	111	Reynolds	Southeastern Region	Rural
6	110	Stone	Southwestern Region	Rural
7	109	Morgan	Central Region	Rural
8	108	Henry	Southwestern Region	Rural
9	107	St. Clair	Southwestern Region	Rural
10	106	Atchison	Northwestern Region	Rural

Uninsured

Health insurance status is tied to several other socioeconomic indicators. Research indicates that persons without health insurance are less likely to receive screenings for chronic medical conditions and have high death rates for diseases such as diabetes, hypertension, and coronary heart disease.⁷⁹

Uninsured rates were obtained from the U.S. Census Bureau, Small Area Health Insurance Estimates (SAHIE) program and represent 2018 estimates. “Each year’s estimates are adjusted so that before rounding the county estimates sum to their respective state totals and for key demographics the state estimates sum to the national ACS† numbers insured and uninsured.”⁸⁰

According to the [America’s Health Rankings](#) Missouri has had a higher percentage of population who are uninsured than the U.S. for the last five years. In 2020, the Missouri uninsured rate was 10%, while the national rate was 9.2%. Uninsured rates represent the estimated percentage of residents under age 65 without health insurance.⁸¹

Uninsured – Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	Scotland	Northeastern Region	Rural
2	114	McDonald	Southwestern Region	Rural
3	113	Morgan	Central Region	Rural
4	112	Knox	Northeastern Region	Rural
5	111	Barry	Southwestern Region	Rural
6	110	Texas	Southeastern Region	Rural
7	109	Ozark	Southeastern Region	Rural
8	108	Dallas	Southwestern Region	Rural
9	107	Wright	Southeastern Region	Rural
10	106	Hickory	Southwestern Region	Rural

Population Living in Poverty

The [2020 Missouri Poverty Report](#) developed by the Missouri Community Action Network and Missourians to End Poverty, reported on the five elements of poverty:

Economic and Family Security:

- ◆ Education
- ◆ Food and Nutrition
- ◆ Health
- ◆ Housing and Energy

Economic stability leads to healthy outcomes through the ability to access and afford healthy food, medicines, and healthcare services. Poverty and poor health are closely linked together. Residents living in impoverished neighborhoods are at increased risk for mental illness, chronic disease, more deaths, and lower life expectancy. These environments often have increased crime rates, lower-performing schools, and less access to healthy foods, which can make getting exercise and creating a healthy diet harder. Often residents cannot afford regular well visits or checkups and do not seek healthcare services with a doctor or dentist until experiencing an emergency. This results in prescriptions going unfilled due to high costs and increased health issues.

The 2019 US Census Bureau poverty data release shows poverty rates for the U.S. in 2018. Missouri ranks 20th highest in the US for poverty rate with a statewide poverty rate of 13.2%. Based on the 2018 population, that equates to 786,330 people in Missouri living in poverty. Of the top ten counties with the highest poverty rate, nine of them are rural and eight of those are located in the southeastern region of the state.⁸²

Socioeconomic characteristics, such as poverty directly influence the health status of a community or region.⁶ Low income and poverty may limit a person's ability to pay for a variety of goods and services related to health, such as fees related to medical visits, healthy foods, and medications.⁸³

Poverty rates represent the estimated percentage of residents living in poverty. Poverty rates were obtained from the U.S. Census Bureau, Small Area Income and Poverty Estimates (SAIPE) program and reflect 2018 estimates. "School district estimates sum to county estimates, county estimates sum to state estimates, and state estimates sum to the national estimate."⁸⁴

In Missouri, poverty rates are 4% higher in rural areas compared to urban locations. Unfortunately for youth (under 18), that disparity increases to 6.2%. More rural counties have poverty rates above

20%. In fact, 22 of 99 rural counties were above the 20% threshold whereas only one (St. Louis City) of the 16 urban counties had a poverty rate above the threshold. Rural counties with the highest poverty rates are located in the south central and southeast regions of the state. Between 2005 and 2013, increases in poverty rates were observed across Missouri, peaking in 2013. More recently, rural and urban rates declined by 16% and 14% respectively between 2013 and 2017.⁶

Children in poverty can face a multitude of serious health problems, such as low birth weight, asthma, obesity, high blood pressure, diabetes, increased accidental injuries, focus and lack of school readiness, stress, and Adverse Childhood Experiences (ACEs). More than 1 in 6 Missouri children (19%) live in poverty compared to just over 1 in 9 (12%) Missouri adults. In rural areas, 23 out of every 100 children experience poverty compared to 16 out of 100 for their urban counterparts. In Missouri, approximately 19% of children live in poverty, compared to 18% living in poverty on the national level.⁶

Children in poverty struggle with nourishment and obtaining access to food and sustenance needed for survival and health. This is particularly salient for children living in Missouri rural areas. During the 2016-2017 school year, about 51% of Missouri's public school students were eligible to receive free or reduced-price lunch. The percent of population eligible for free or reduced-price lunch was 12% higher for rural counties (58%) compared to urban counties (46%). Nine of the 10 Missouri counties with the highest percentage of eligible students were rural.⁶ Social systems need to be put in place to help children living in poverty and increase the ability to gain access to healthy food options. Additionally, the increased rates of adults and older populations living in poverty result in children living in poverty.

Adult and older rural populations experience poverty at high rates and struggle to make ends meet. As the aging population grows, it is imperative to develop programs to improve access to healthcare services to treat the aging population with many comorbidity issues related to access and poverty. Older adults living in poverty are susceptible to many aligning issues and struggle more to live, make healthy choices, and have the opportunity or ability to be active in the community. In 2017, the statewide Missouri poverty rate for the 65 and older population, 9%, was comparable to the US poverty rate for the same population, 9%, according to the Congressional Research Services Report. However, in rural communities more than 1 in 10, or 11%, elderly citizens live in poverty, compared to an urban rate of 8%.⁶ Nine of the top 10 Missouri counties with the highest rates of elder poverty are rural, (St. Louis City is the only urban county). Missouri counties with the highest percentages of elder poverty are the rural counties of Shannon (23%), Oregon (19%), and Howell (18%).

Poverty – Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	Pemiscot	Southeastern Region	Rural
2	114	Mississippi	Southeastern Region	Rural
3	113	Dunklin	Southeastern Region	Rural
4	112	Texas	Southeastern Region	Rural
5	111	Adair	Northeastern Region	Rural
6	110	Wright	Southeastern Region	Rural
7	109	Oregon	Southeastern Region	Rural
8	108	Ripley	Southeastern Region	Rural
9	107	Wayne	Southeastern Region	Rural
10	106	St. Louis City	St. Louis Metro	Urban

A common measure of relative wealth is per capita income, or income per person. In 2017, Missouri residents of rural counties had an average per capita income of \$35,412, which was 29% lower than urban counterparts, \$49,717, which were both much lower than the national average of \$51,731. Only two rural counties were included in the top 10 list of Missouri counties for highest per capita income. The two counties with the highest per capita income were urban. Hickory County, a mid-Missouri county and poorest in the state, had a per capita income less than half the national average. People with lower income levels have higher rates of heart disease, diabetes, stroke, and other chronic conditions. Lower income is also associated with high rates for multiple chronic disease risk factors, including smoking, obesity, and physical inactivity. In addition to rural poverty issues, rural areas are impacted by lack of educational opportunities.⁶

Population-to-Provider Ratios

Population-to-provider ratios are important access to care indicators because “many counties lack sufficient providers to meet patient needs”⁸⁶ lack sufficient providers to meet patient needs; as of December 2020, there were about 7,290 primary care, 5,820 mental health, and 6,559 dental federally designated ‘Health Professional Shortage Areas’ in the U.S.⁸⁵

Having a regular primary care provider is associated with a higher likelihood of appropriate care, and a usual source of care is associated with better health outcomes. In 2010, 86% of Americans had a usual source of care, but those with low incomes were less likely to than those with higher incomes, and the uninsured were twice as likely as the insured to lack a usual care source.”⁸⁶

Population-to-provider ratios represent the ratio of the county population to the number of providers in the specified health care category. Population-to-provider ratios were obtained from the 2019 County Health Rankings and Roadmaps website.⁸⁷ The mental health provider and dentist ratios utilized in this report reflect updates made to the County Health Rankings and Roadmaps website as of February 2020. An explanation of these updates:

<http://www.countyhealthrankings.org/content/data-changes>.

Population-to-provider ratios were not available for a small number of counties. In these instances, the average of the ratios from surrounding counties was used. If one of the surrounding counties was also missing the population-to-provider ratio, that county was excluded from the average calculation. Counties for which substitute ratios were calculated are flagged in the data table. (Counties from other states were included in the substitute ratios as appropriate.)

Population to Primary Care Provider Ratio

Primary care physicians include non-federal, [allopathic (MD) and osteopathic (DO)] practicing physicians under age 75 specializing in general practice medicine, family medicine, internal medicine, and pediatrics.

According to County Health Rankings, “Sufficient availability of primary care physicians is essential for preventive and primary care, and when needed, referrals to appropriate specialty care.”

Although the relationship between primary care physicians and improved health outcomes is supported in the literature, this measure has a number of limitations. Primary care physicians are classified by county, but physicians living on the edge of counties or who practice in multiple locations may see patient populations that reside in surrounding counties. Physicians are not the only type of primary care provider available for most patients. This measure does not include nurse practitioners, physician assistants or other practitioners available for primary care services. The way

care is organized and coordinated may be just as important to health outcomes as the number of primary care physicians in an area.⁸⁶

Counties with missing primary care provider ratios in the 2016 data file were Caldwell, Iron, Crawford, Jasper, Newton, Oregon, Shannon and Shelby.

Population to Primary Care Provider Ratio – Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	New Madrid	Southeastern Region	Rural
2	114	Dallas	Southwestern Region	Rural
3	113	Lincoln	St. Louis Metro	Rural
4	112	Bollinger	Southeastern Region	Rural
5	111	Maries	Central Region	Rural
6	110	Andrew	Northeastern Region	Rural
7	109	Daviess	Northwestern Region	Rural
8	108	Moniteau	Central Region	Rural
9	107	McDonald	Southwestern Region	Rural
10	106	Chariton	Northeastern Region	Rural

Population to Mental Health Provider Ratio

This measure represents the ratio of the county population to the number of mental health providers including psychiatrists, psychologists, licensed clinical social workers, counselors, and advanced practice nurses specializing in mental health care. “This data comes from the National Provider Identification data file, which has some limitations. Providers who transmit electronic health records are required to obtain an identification number, but very small providers may not obtain a number. While providers have the option of deactivating their identification number, some mental health professionals included in this list may no longer be practicing or accepting new patients.”⁸⁸

Counties with missing mental health provider ratios in the 2018 data file were Ozark, Schuyler, Shelby, Sullivan, and Worth.

Population to Mental Health Care Provider Ratio – Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	Osage	Central Region	Rural
2	114	DeKalb	Northwestern Region	Rural
3	113	Caldwell	Kansas City Metro	Rural
4	112	Carroll	Northwestern Region	Rural
5	111	Shannon	Southeastern Region	Rural
6	110	McDonald	Southwestern Region	Rural
7	109	Clark	Northeastern Region	Rural
8	108	Oregon	Southeastern Region	Rural
9	107	St. Clair	Southwestern Region	Rural
10	106	Mississippi	Southeastern Region	Rural

Population to Dentist Ratio

“This measure estimates the population per dentist in the county. Dentists are classified by county, but dentists living on the edge of counties or who practice in multiple locations may see patient populations that reside in surrounding counties. This data comes from the National Provider Identification data file, which has some limitations. Providers who transmit electronic health records are required to obtain an identification number, but very small providers may not obtain a number. While providers have the option of deactivating their identification number, some dentists included

in this list may no longer be practicing or accepting new patients.”⁸⁹

Counties with missing dentist ratios in the 2017 data file were Holt, Chariton and Shannon.

Population to Dentist Ratio – Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	Pemiscot	Southeastern Region	Rural
2	114	Ripley	Southeastern Region	Rural
3	113	Wayne	Southeastern Region	Rural
4	112	DeKalb	Northwestern Region	Rural
5	111	Barton	Southwestern Region	Rural
6	110	Oregon	Southeastern Region	Rural
7	109	Ralls	Northeastern Region	Rural
8	108	Lewis	Northeastern Region	Rural
9	107	Caldwell	Kansas City Metro	Rural
10	106	Crawford	St. Louis Metro	Rural

Mammogram, Pap Smear, and Sigmoidoscopy/Colonoscopy Screenings

A screening is a test that is done to check for a disease when there are no symptoms.⁹⁰ According to the National Cancer Institute, ”Screening tests can help find cancer at an early stage, before symptoms appear. When abnormal tissue or cancer is found early, it may be easier to treat or cure.”⁹¹

Screening rates are age-adjusted percentages from the 2016 County-Level Study survey of non-institutionalized Missouri resident adults ages 18 and older.

Mammogram screening rates are derived from responses of “past two years” from women ages 40 and older to the following questions:

- ◆ “How long has it been since you had your last mammogram?” AND
- ◆ “How long has it been since your last breast exam (clinical breast exam by a doctor or other health professional)?”

Mammogram Screenings– Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	Sullivan	Northeastern Region	Rural
2	114	Schuyler	Northeastern Region	Rural
3	113	Reynolds	Southeastern Region	Rural
4	112	Howell	Southeastern Region	Rural
5	111	Bollinger	Southeastern Region	Rural
6	110	Wright	Southeastern Region	Rural
7	109	Douglas	Southeastern Region	Rural
8	108	Bates	Kansas City Metro	Rural
9	107	Dallas	Southwestern Region	Rural
10	106	Texas	Southeastern Region	Rural

Pap smear screening rates are derived from responses of “3 years or more” from women ages 18 and older to the following question:

- ◆ “How long has it been since you had your last Pap test?”

Pap Smear Screenings – Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	Texas	Southeastern Region	Rural
2	114	Wayne	Southeastern Region	Rural
3	113	Ripley	Southeastern Region	Rural
4	112	Maries	Central Region	Rural
5	111	Howard	Central Region	Rural
6	110	Barry	Southwestern Region	Rural
7	109	Shannon	Southeastern Region	Rural
8	108	Stone	Southwestern Region	Rural
9	107	Oregon	Southeastern Region	Rural
10	106	Mississippi	Southeastern Region	Rural

Sigmoidoscopy/Colonoscopy screening rates are derived from responses of “10 years or more” from men and women ages 50 and older to the following question:

- “How long has it been since you had your last sigmoidoscopy or colonoscopy?”

Sigmoidoscopy and Colonoscopy Screenings – Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	Dent	Central Region	Rural
2	114	Schuyler	Northeastern Region	Rural
3	113	Scotland	Northeastern Region	Rural
4	112	Sullivan	Northeastern Region	Rural
5	111	Ozark	Southeastern Region	Rural
6	110	Pemiscot	Southeastern Region	Rural
7	109	Cedar	Southwestern Region	Rural
8	108	Greene	Southwestern Region	Urban
9	107	Texas	Southeastern Region	Rural
10	106	Carroll	Northwestern Region	Rural

Preventable Hospitalizations

Preventable hospitalizations (also called ambulatory care sensitive conditions) are ‘potentially preventable and may indicate reduced access to and a lower quality of ambulatory care.’⁹² “Although not all such hospitalizations can be avoided, admission rates in populations and communities can vary depending on access to primary care, care-seeking behaviors, and the quality of care available. Because hospitalization tends to be costlier than outpatient or primary care, potentially preventable hospitalizations often are tracked as markers of health system efficiency.”⁹³

Preventable hospitalization rates are reported per 10,000 residents under age 65 and were obtained from the Preventable Hospitalizations MICA, which contains data from Missouri resident hospital records submitted through the Missouri Patient Abstract System.

Preventable hospitalization rates are age-adjusted to the 2000 U.S. Standard Population and reflect 2015 data.

Preventable Hospitalizations – Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	Pemiscot	Southeastern Region	Rural
2	114	Ripley	Southeastern Region	Rural
3	113	St. Louis City	St. Louis Metro	Urban
4	112	Dunklin	Southeastern Region	Rural
5	111	Butler	Southeastern Region	Urban
6	110	Mississippi	Southeastern Region	Rural
7	109	Barton	Southwestern Region	Rural
8	108	Sullivan	Northeastern Region	Rural
9	107	Lafayette	Kansas City Metro	Rural
10	106	Scott	Southeastern Region	Rural

Dental Visits in the Last Year

According to HealthPeople.gov, “the health of the teeth, mouth and surrounding craniofacial (skull and face) structures is central to a person’s overall health and well-being.”⁹⁴ “Research findings have pointed to possible associations between chronic oral infections, diabetes, heart and lung diseases, stroke, and low-birth-weight, premature births,” as well as other negative health outcomes.⁹⁵

DHSS, Office of Dental Health (ODH), recommends that, “most healthy adults should visit a dentist at least once per year. During this visit, a dentist or dental hygienist will examine the teeth and gums, look for broken or damaged teeth, and will look for signs of oral cancer. Additionally, teeth will be cleaned to remove plaque and tartar in order to prevent tooth decay. Dental professionals often educate patients about proper brushing and flossing techniques, good dietary practices, avoiding tobacco products, and ways to avoid injuring teeth and gums.”⁹⁶ Thus, regular dental exams are another form of health screening and provide a way to prevent poor health outcomes or treat them before they become severe. According to the Missouri ODH, 76.8% of the population served by Community Water Systems (CWS) are receiving fluoridated water.⁹⁷

Dental visit in past year rates are percentages from the 2016 County-Level Study survey of non-institutionalized Missouri resident adults ages 18 and older. These percentages are not age- adjusted.

Dental visit in past year rates are derived from “Within the past two years (more than two years ago)” responses to the following question:

- “How long has it been since you last visited a dentist or a dental clinic for any reason?”
Visits to dental specialists such as orthodontists are included.

Dental Visit in Past 2 years – Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	Ripley	Southeastern Region	Rural
2	114	Shannon	Southeastern Region	Rural
3	113	Wright	Southeastern Region	Rural
4	112	Carter	Southeastern Region	Rural
5	111	Benton	Southwestern Region	Rural
6	110	Wayne	Southeastern Region	Rural
7	109	Miller	Central Region	Rural
8	108	Oregon	Southeastern Region	Rural
9	107	Dunklin	Southeastern Region	Rural
10	106	Lawrence	Southwestern Region	Rural

Dental-Related Emergency Room (ER) Visits

The American Dental Association has identified dental care ER visits as an area of health care in which costs could be reduced and patient care and outcomes improved.⁹⁸ The dental-related ER visit rates in this report were obtained from the Emergency Room MICA diagnosis category of disorders of teeth and jaw. The specific diagnoses “included in the ‘disorders of teeth and jaw’ category have been reviewed by DHSS-affiliated dentists to ensure they represent complaints that specifically exclude injuries and malignancies. Therefore, these dental emergency department (ED) visits can be considered preventable and non-traumatic. Dentists have also confirmed that these complaints could all be treated in a dental office rather than a hospital. Furthermore, EDs generally only provide short-term relief of symptoms for this class of dental problems, which means that an additional visit to a dentist will be necessary for most patients to complete their treatment.”⁹⁹

Dental-related ER visit rates are reported per 1,000 residents and were obtained from the Emergency Room MICA, which contains data from Missouri resident ER records submitted through the Missouri Patient Abstract System.

Dental-related ER visit rates are age-adjusted to the 2000 U.S. Standard Population and represent the 2015 data.

Dental-Related ER Visits – Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	Iron	Southeastern Region	Rural
2	114	Washington	Central Region	Rural
3	113	Bates	Kansas City Metro	Rural
4	112	St. Francois	Southeastern Region	Rural
5	111	Barry	Southwestern Region	Rural
6	110	Madison	Southeastern Region	Rural
7	109	Barton	Southwestern Region	Rural
8	108	Franklin	St. Louis Metro	Rural
9	107	Vernon	Southwestern Region	Rural
10	106	Gasconade	Central Region	Rural

Inadequate Prenatal Care

Adequacy of prenatal care measures when a pregnant woman first received prenatal care and how often she received prenatal care throughout her pregnancy.¹⁰⁰ “Infants born to mothers who received no prenatal care are three times more likely to be born at low birth weight, and five times more likely to die, than those whose mothers received prenatal care.”¹⁰¹

Inadequate prenatal care rates are percentages calculated using the Missouri Index developed by Wayne Schramm with the DHSS. Using this index, inadequate prenatal care is defined as fewer than five prenatal visits for pregnancies less than 37 weeks in length, fewer than eight visits for pregnancies 37 weeks or longer, or care beginning after the first four months of pregnancy. If adequacy of prenatal care can be determined even if the month prenatal care began or the number of prenatal care visits is unknown, these records are included. Inadequate prenatal care rates utilizing the Missouri Index tend to be higher than inadequate prenatal care rates that utilize the Kotelchuck Index, a commonly cited alternative prenatal care adequacy measure.

Inadequate prenatal care rates were obtained from the Birth MICA, which contains data from Missouri resident birth certificates, and represent the 2014-2018 time period. (Rates for both the Missouri Index and the Kotelchuck Index definitions of inadequate prenatal care are available in the Birth MICA.)

Inadequate Prenatal Care – Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	Cole	Central Region	Urban
2	114	Boone	Central Region	Urban
3	113	Stoddard	Southeastern Region	Rural
4	112	Clark	Northeastern Region	Rural
5	111	Randolph	Northeastern Region	Rural
6	110	Pemiscot	Southeastern Region	Rural
7	109	Howard	Central Region	Rural
8	108	Clinton	Kansas City Metro	Rural
9	107	St. Louis County	St. Louis Metro	Urban
10	106	Shelby	Northeastern Region	Rural

Low Birth Weight

Low birth weight can increase infant's risk of death in its first few days of life. Low birth weight is associated with negative health outcomes for the child.¹⁰²

Low birth weight rates are percentages that reflect the number of resident infants with a birth weight less than 2,500 grams (5 pounds, 8 ounces) divided by the total number of resident live births. Infants with a very low birth weight of less than 1,500 grams (3 pounds, 5 ounces) are included in low birth weight rates.

Low birth weight rates were obtained from the Birth MICA, which contains data from Missouri resident birth certificates, and represent the 2014-2018 time period.

Low Birth Weight – Greatest Unmet Health Needs				
Ranking	Basic Ranking	County	BRFSS Region	Urban/Rural
1	115	St. Louis City	St. Louis Metro	Urban
2	114	Dunklin	Southeastern Region	Rural
3	113	Mississippi	Southeastern Region	Rural
4	112	Hickory	Southwestern Region	Rural
5	111	Pemiscot	Southeastern Region	Rural
6	110	Washington	Central Region	Rural
7	109	New Madrid	Southeastern Region	Rural
8	108	Butler	Southeastern Region	Rural
9	107	Iron	Southeastern Region	Rural
10	106	Shannon	Southeastern Region	Rural

Additional Barriers

There were several additional barriers identified in the course of compiling the Missouri Statewide PCNA 2020 that are not included in the Health Indicators identified by the County-Level Study or MICA profiles. The PCO evaluated these additional significant barriers to health care for Missourians, which are described in the following sections.

Hospital Closures

Rural hospitals are in financial distress, resulting in some having to close permanently. These closures affect "millions of rural residents in communities that are typically older, more dependent on public insurance programs, and in worse health than residents in urban communities."¹⁰³ From 2014-2020, a total of 15 Missouri hospitals have closed, of which 10 were located in rural counties.

Hospital closures have increased the number of rural counties without a hospital from 51, in 2017, to 55, in 2020.

In rural Missouri, basic access to primary care physicians, dentists, hospital services, and specialty care services are limited. One of the leading contributors to a higher death rate is the lack of hospital and specialty services in rural Missouri. Lack of specialty services can mean no access to or less consistent care for vulnerable populations due to lower incomes and increased age of rural residents.

Of the 161 licensed hospitals in Missouri, 64 (40%), including five behavioral health hospitals, are located in rural counties. Of those 64 hospitals, 31 are CAHs. There are an additional four CAHs located in non-rural counties. Rural hospitals are a crucial component of a community's wellbeing, providing primary, acute, and long-term care. Rural hospitals are often a major employer and collaborative member of community-based health programs and initiatives. Missouri's rural hospitals provide 1.84 beds per 1,000 residents in rural counties while urban counties have 3.96 beds per 1,000 residents. Level 1 Trauma Centers, Pediatric Trauma Centers, Stroke Centers or ST-Elevation Myocardial Infarction (STEMI) Centers are only available in urban counties.

Low reimbursement rates from Medicare, Medicaid, and commercial insurance, increased regulation, reduced patient volumes, inefficient billing practices, and unpaid patient medical bills have caused many rural hospitals to struggle financially. For details on the COVID-19 Pandemic-specific effects, see [COVID-19 Hospital Operation](#).

CAHs

In 2020, Missouri has 35 CAHs. CMS designates the CAH status. CAHs reduce the financial vulnerability of rural hospitals and improve healthcare access by providing critical services to rural communities. A hospital must have 25 or less acute care inpatient beds, be more than 35 miles from another hospital, provide a limited scope of service, have an average length of stay of no more than 96 hours for acute care patients, and provide 24/7 emergency services to be CAH designated.⁶ However, patients are frequently transferred to larger facilities for critical and specialty care, due to the maximum 96-hour stay requirement. CAHs are a vital part of rural healthcare and also a major employer in rural communities.

FQHCs

One in six rural residents receives primary care, behavioral health, and dental care from FQHCs. Missouri has 29 FQHCs, 23 of which have at least one location in a rural county. According to HRSA, Missouri has a total of 244 FQHC locations, including all types and settings, main sites and satellite clinics. As a "safety net" provider, FQHCs offer services regardless of ability to pay, have a sliding fee discount program, serve medically underserved areas or populations, provide comprehensive primary care services, be a nonprofit or public organization, be community-based with patients comprising the majority of the governing board of directors, and have an on-going quality assurance program.⁶

RHCs

Missouri has approximately 340 RHCs, more than any other state, according to CMS. Intended to increase access to primary care in rural areas, RHCs are public, nonprofit, or for-profit health care facilities. A RHC must be located in a rural, underserved area, provide outpatient primary care services and basic laboratory services. Recognizing the importance of a team approach to providing

care, physicians work with NPs, Physician Assistants (PAs), and Certified Nurse Midwives (CNMs), whom staff RHCs at least 50% of the time.⁶

Health Literacy

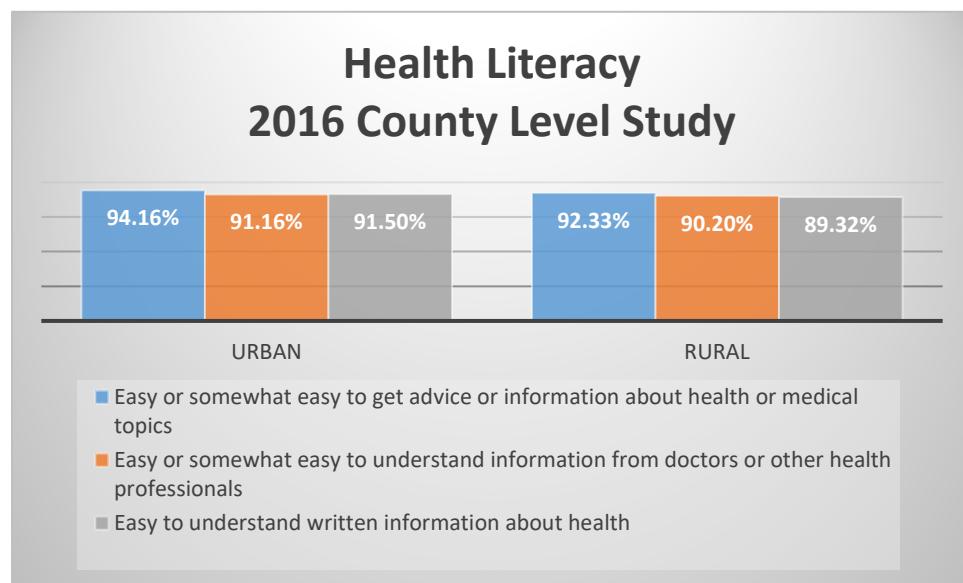
Health Literacy Media (HLM), explains that “health literacy is not a set of skills that people may or may not have and is instead a multidimensional concept influenced by how health care systems operate, how health care professionals share information, and how patients understand information.”¹⁰⁴

The HRSA cites providers using words outside the patient’s understanding, low educational skills, cultural barriers, and Limited English Proficiency (LEP), as reasons for low patient health literacy.¹⁰⁵

According to the Center for Health Care Strategies, Inc. (CHCS), “an estimated 90 million Americans have low health literacy.” Low health literacy can result in medication errors, ineffective management of chronic conditions, longer hospital stays, and higher mortality. This does not only effect individuals but also families, the community, health care systems, employers, insurers and the Government as well.

Survey data is one of the best resources for measuring self-reported health literacy. Figure 19 represents the 2016 County Level Study survey results.

Figure 19: Health Literacy 2016 County Level Study



Education

Higher levels of education have been linked to better health. Education provides protective factors against the onset of certain diseases. Education increases the ability for individuals to find and sustain employment, understand health issues and needs, understand how to access healthcare resources, and increases the chance of implementing resources to improve overall health for themselves and families. Persons with lower levels of education have higher rates of accidents, smoking and drug abuse, and greater risk of premature death and certain diseases even when accounting for other social and economic factors.

Rural Missourians over the age of 25 fail to obtain a high school diploma or equivalency at a higher rate (15%) than urban Missourians (9%). A larger proportion of rural residents only have a high school diploma and no post-secondary education, 39% rural versus 27% urban. Rural Missourians complete a 4 year degree at a rate less than half that of urban residents (17% rural versus 34% urban).⁶ It is imperative to create impactful programs addressing the educational needs in rural communities.

Transportation

A 2018 report by the Missouri Foundation for Health (MFFH) discusses the impact of transportation challenges on rural health, stating they are “evident in the disparate health outcomes between rural and urban communities in the state.” The report, titled *Transportation and Health in Rural Missouri* explains that time, cost and the limited nature of transportation all contribute to health care access problems. The MFFH cites necessary travel times of more than a hundred miles for some Missourians to be seen by a health care provider.¹⁰⁶

With the majority of Missouri being rural there is a lack of public transportation services and even when it is available, the services often have limited hours, or families still reside far away from the bus routes.

A 2014 paper published by the Journal of Community Health elaborates further on transportation as a barrier to health care access, citing these barriers as leading to “rescheduled or missed appointments, delayed care, and missed or delayed medication use.” The authors found that those impacted the most by transportation barriers were those with “lower incomes or [those whom were] under/uninsured.”¹⁰⁷

Missouri rural communities utilize both private and public modes of transportation to access healthcare services, which is typically miles from health centers. Rural communities are often devoid of healthcare facilities, pharmacies, and even grocery stores. For most rural residents, they primarily utilize a personal vehicle, due to the inaccessibility of any public modes of transportation. Access to health care continues to be a significant challenge for rural residents due to the limited availability of transportation but also travel time and travel costs. Many rural residents must travel for more than an hour, up to 100 miles or more to access healthcare services. Rural residents’ lack of access to healthcare providers increases the distances rural residents must travel for healthcare. Furthermore, rural residents experience longer travel distances commuting to work.¹⁰⁸

Prior to the current COVID-19 pandemic, more US citizens were commuting to work each year and at greater distances. In 2017, the average American spent 26.1 minutes commuting to work each way. Studies show that the toll of a daily commute puts stress on the mind and body and with that comes increased health risks. These risks can range from headaches and backaches, to psychological disorders, digestive problems, and high blood pressure. Not only does the commute itself weigh heavy on individuals, but it leaves them with less time for life enriching activities like cooking healthy meals, exercising, and getting adequate amounts of sleep.⁶ According to the most recent US Census Bureau survey, the majority of Missouri residents work outside of the home. Approximately 95% of rural and urban residents commute to work. Of the counties whose residents spent an average of more than 30 minutes commuting each way to work, 11 of the 12 counties were rural. Transportation barriers prevent people from accessing healthcare; on the other hand, access to telehealth services decreases barriers to receive healthcare.

Internet and Telehealth

Through telehealth advancements, access to quality primary and specialty health services increases for people in rural areas, when broadband is available. As telehealth progressively becomes a part of the nation's healthcare delivery system, access to healthcare is increasingly being linked to access to broadband. Broadband connectivity has become critical as a means of providing care in HPSAs.

- ◆ Only 71% of rural Missourians have access to broadband internet, which is 27% less than the urban rate (98%).⁶
- ◆ South Central Missouri has a large block of counties with less than half of their population having high-speed access.⁶
- ◆ Rural Northwest and Southeast Missouri areas generally have higher rates of access, while North Central and Northeastern Missouri had lower access rates.⁶
- ◆ All urban counties had at least 75% coverage with seven of the 16 urban counties having 96% coverage.⁶

The Missouri PCO recognizes that utilizing technology such as telehealth to bridge the large geographic spread of rural Missouri will improve access to care.

Unemployment

The first step in gaining access to health services is usually acquiring insurance through employment.¹⁰⁹

Over the last ten years, unemployment rates throughout the state of Missouri have been declining. At the end of the Great Recession in 2009, rates were 12.2% in rural areas and 9.7% in urban counties. Since then, the collective rates (2009-2019) have dropped to less than half those recorded a decade ago (4.5% for rural areas and 3.4% for urban areas).⁶

Rural/Urban Comparison:

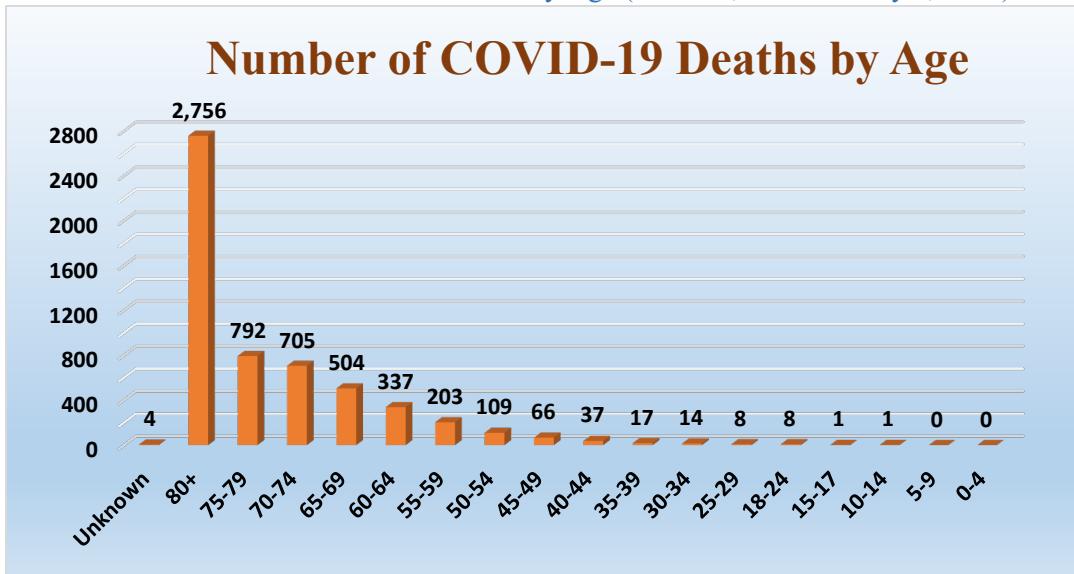
- ◆ The 39 Missouri counties with the highest rates of unemployment during the past decade were rural. St. Louis City (7.9% unemployment rate) was the highest urban county, ranking 40th overall.⁶
- ◆ The gap between rural and urban unemployment rates has shrunk in recent years but a gap still remains. In February 2010, rural Missourians unemployment rate was 2.6 percentage points higher than their urban counterparts (12.3% versus 9.7%); but by February 2019, that gap had shrunk to 1.1 percentage points (4.5% versus 3.4%).⁶
- ◆ Workforces in Taney and Stone counties (in the Branson area) experienced unemployment at rates well above every other county in the state (18.3% and 17.1% respectively) during February 2009-2019. This is likely due to the month of February being the survey month, which is outside the traditional Branson tourism season. Shannon County in rural south-central Missouri had the third highest unemployment rate at 11.5%.⁶

Coronavirus Disease 2019 (COVID-19)

Missouri Population

Missouri's population has been greatly affected by the COVID-19 pandemic. From March 1, 2020, through January 1, 2021, there have been 402,957 cases, 5,562 deaths, and almost 3.7 million tests administered.¹¹⁰ While the majority of COVID-19 related deaths in Missouri have occurred in individuals age 50 and older, 152 deaths were attributed to those under the age of 50.

Figure 20: Number of COVID-19 Deaths in Missouri by Age (March 1, 2020-January 1, 2021)

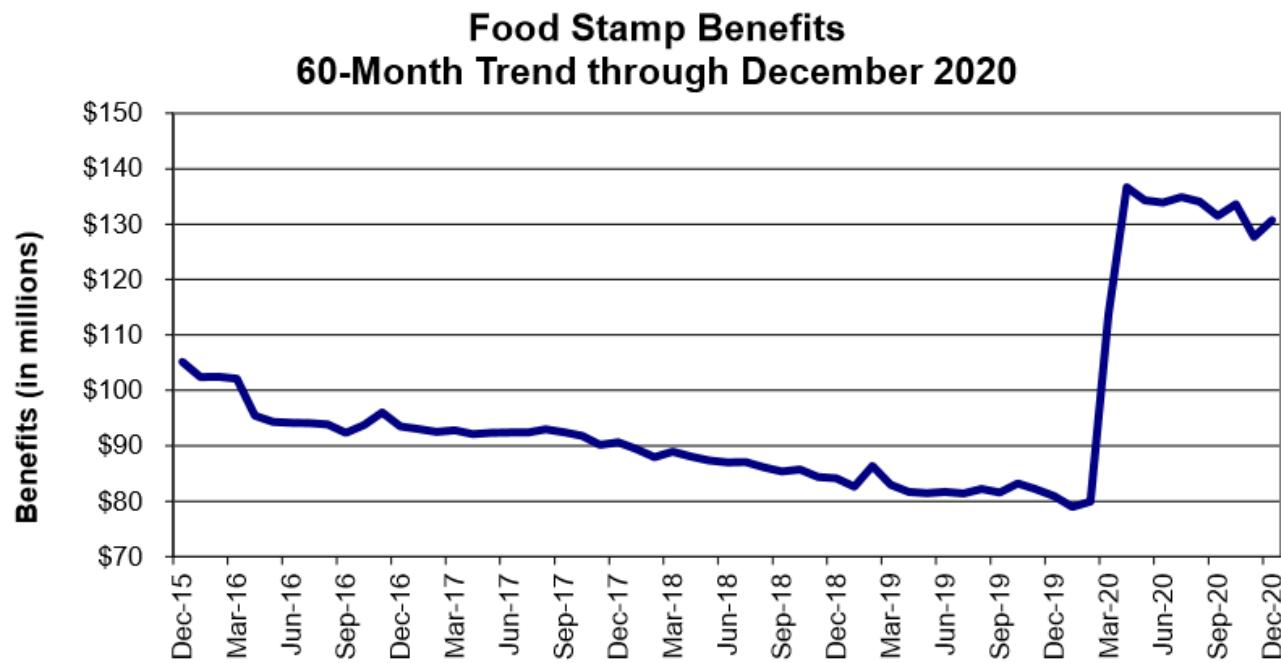


Economy

According to the [U.S. Bureau of Labor Statistics](#) the 2019 Unemployment Rate Average for the State of Missouri was around 3.4; however, in April and May of 2020, that rate almost tripled. Being unemployed creates a great barrier to adequate health care. Job loss, underemployment, low pay, or unemployment can also cause stress that can impact physical and mental health.⁶ Since the onset of the COVID-19 pandemic unemployment rates have increased as indicated in the chart below.

Year	Month	Unemployment Rate Missouri
2020	Aug	7.0
2020	Jul	6.9
2020	Jun	7.8
2020	May	10.1
2020	Apr	10.2
2020	Mar	3.9
2020	Feb	3.5
2020	Jan	3.5
2019	Dec	3.4
2019	Nov	3.4
2019	Oct	3.4
2019	Sep	3.3
2019	Aug	3.2
2019	Jul	3.2
2019	Jun	3.1
2019	May	3.1
2019	Apr	3.2
2019	Mar	3.2
2019	Feb	3.2
2019	Jan	3.2

Missouri experienced a massive increase in initial Supplemental Nutrition Assistance Program (SNAP) applications between March and April 2020. The table below highlights the dramatic increase in SNAP benefit distributions from February 2019, through June 2020, which was a result of the COVID-19 pandemic.



Source: Missouri Department of Social Services, MO HealthNet Monthly Management Report December 2020
https://dss.mo.gov/re/pdf/fsd_mhdmr/1220-family-support-mohealthnet-report.pdf.

Hospital Operations

The Missouri Hospital Association's (MHA) April 2020 report titled *COVID-19 and Missouri Hospital Finances* reflected a 40% reduction in inpatient revenues, and a 60% reduction in outpatient revenues. "This amounts to an aggregate loss in revenue of \$32 million a day, or nearly \$1 billion per month, for the state's hospitals."¹¹¹ MHA interviewed 53 hospitals and found that: 12% reported terminations/layoffs; 82% reported reductions in hours worked; and 43% reported temporary leaves of absences without pay.

Local Public Health Agencies

At least twelve Local Public Health Agency Administrators have either resigned or retired throughout the 2020 COVID-19 pandemic. According to an article in the St. Louis Post-Dispatch¹¹², Health department directors and staff across Missouri have received threats; they have been harassed and publicly attacked through social media. The article also states, "In early August, a review by Kaiser Health News and the Associated Press found at least 49 state and local health leaders had resigned, retired or been fired since April across 23 states. They have left their posts due to a mix of backlash and stressful, nonstop working conditions such as staffing and funding shortages."

Missouri Primary Care Office Efforts

Workforce Recruitment and Retention

Collaboration and Partnerships

The PCO continues to collaborate with the MPCA, through a contractual agreement, which includes increasing access to care through development of community-based systems of care for primary medical, dental, and behavioral health services in Missouri underserved communities and populations. The MPCA also provides the PCO with current provider and county level Sliding Fee Scale data for all Missouri FQHCs to support HPSA applications. The PCO provides data support to the MPCA, who thereby assists health centers in the preparation of continuation, expansion, and new access point proposals.

The MPCA is currently performing Recruitment and Retention Readiness Assessments in partnership with volunteering facilities/organizations located in defined HPSAs. The assessments will evaluate facilities/organizations' overall readiness to successfully recruit and retain workforce. Each individualized assessment will be done virtually and will include one-on-one interviews, phone calls, a survey, and website review. A digital report will be provided to the facilities after each assessment with the offer of a follow-up conference call to review the findings and recommendations. This project will provide insight and guidance to facilities/organizations to improve their current recruitment and retention activities.

In addition to continuing efforts, MPCA is performing up to 15 Recruitment and Retention Readiness Assessments in partnership with volunteering facilities/organizations located in defined HPSA. These assessments will be completed between January 1, 2020, and March 31, 2021, and evaluate a facilities/organization's overall readiness to successfully recruit and retain workforce. Each individualized assessment will be done virtually and will include one-on-one interviews, phone calls, a survey, and website review. A digital report shall be delivered to the facilities after each assessment with the offer of a follow-up conference call to review the findings and recommendations.

The PCO collaborates with DHSS ITSD staff to create an interactive Primary Care Provider Map. This Primary Care Provider Map will allow users to search for a Missouri primary care provider by various filters, such as address, county, provider type, and distance from a specified address. The map will populate the provider location, including address and telephone information, and offer the option of mapping directions to the provider location. This tool will greatly benefit Missourians who are in need of locating a primary care provider by reducing the time it takes to find a provider, having accurate and timely information regarding currently practicing providers, and in turn increasing access to care.

The PCO collaborates with MAHEC to support a Mental Health First Aid Initiative. The MAHEC and PCO recognize the importance of engaging with communities and educational institutions, including students studying for careers as health professionals, in responding to Missouri's growing needs for mental health services.

Health Professional Student Loan and Loan Repayment Programs

The Student Loan and Loan Repayment Programs have direct impacts on provider recruitment and retention efforts in Missouri. Many loan applicants apply for consecutive awards, often leading to extended contracts, resulting in providers to continuing to serve their patients in areas of need.

National Health Service Corps

The PCO continues to partner with the NHSC to recruit and retain primary medical, dental and behavioral health care clinicians in Missouri HPSAs. The PCO provides technical assistance regarding the initial and recertification application processes, state and federal scholarship and loan repayment programs, and other funding opportunities to communities, health care facilities, and potential and existing NHSC-approved sites. The PCO and DRO are also working together to improve collaboration efforts to more effectively disseminate NHSC information relating to the loan and loan repayment programs and site applications.

Shortage Designations

The PCO continues efforts on provider management activities, including responding to Auto-HPSA questions from stakeholders and participating in all HPSA-related training activities. PCO also participated in testing of changes to the SDMS.

In 2013, HRSA began a Shortage Designation Modernization Project (SDMP) and this process has progressed through multiple phases. In Phase I of the SDMP that took place in 2013, the SDMS was developed and released. In 2017, Phase II was the completion of the first National Shortage Designation Update (NSDU) of geographic, population and facility HPSAs. This first NSDU update did not include Auto-HPSAs. In Phase III that occurred in 2019, the first NSDU of Auto-HPSAs was completed. Currently Phase IV is in progress and during this phase HRSA asked for public input on HPSA scoring criteria and they will review the feedback to determine if any scoring changes should be implemented. **Error! Bookmark not defined.** Throughout all of the SDMP the PCO has actively participated in providing feedback and reviewing all HPSA updates.

Waiver Recommendations

The PCO continues to provide recommendations for J-1 Visa Waivers to foreign medical graduates that agree to serve for at least three years in an underserved area in Missouri. The PCO continues to provide recommendations for all 30 slots, further expanding and strengthening the health care safety net. During the current grant year, the PCO has included the option for applicants to submit their applications electronically. In addition to filling the Conrad 30 Waiver recommendation slots, Missouri also has provided several attestations and letters of support for physicians applying for a J-1 Visa Waiver through HHS and those applying for a National Interest Waiver.

Code of State Regulations (CSR)

The PCO has implemented a process of regularly reviewing and revising Missouri regulations relating to the activities of the PCO. In 2020, the PCO revised Missouri 19 CSR 10-4.020, which outlines the requirements of the Missouri J-1 Visa Waiver Program, to ensure that the State Regulation is in alignment with current Federal rules and regulations relating to the J-1 Visa State Conrad Waiver recommendation process. The PCO revises regulations related to federal and state requirements, guidelines, and recommendations.

Regulations that the Missouri PCO regularly reviews for revisions include:

- ◆ [19 CSR 10-4.010 Primary Care Resource Initiative for Missouri \(PRIMO\) Program](#)
- ◆ [19 CSR 10-4.030 National Interest Waiver Program](#)
- ◆ [19 CSR 10-3.030 Health Professional Student Loan Repayment Program](#)
- ◆ [19 CSR 10-6.010 Nurse Loan and Nurse Loan Repayment Programs](#)
- ◆ [19 CSR 10-4.020 J-1 Visa Waiver Program](#)

COVID-19 Efforts

Since the onset of the COVID-19 pandemic, DHSS has worked as a team throughout the planning and implementing of various systems and processes. DHSS managed to transition a significant amount of staff to working remotely while maintaining program activities and requirements. DHSS also has implemented a 24/7 COVID hotline, and a COVID-19 Technology Response System to report, monitor and trace COVID-19 cases across Missouri. DHSS staff, including ORHPC staff, have stepped up to answer calls on the hotline, complete numerous hours of data entry, participate in strategic planning meetings, and conduct case investigations/tracing. Many of these activities have, and continue to be, completed outside normal business hours, proving how dedicated DHSS staff are to serving Missourians.

In addition to the previously stated COVID efforts, Missouri is working diligently to get all Missourians COVID-19 vaccinated in the first half of 2021 by vaccinating in accordance with a three phase plan identified on the www.covidvaccine.mo.gov website.¹¹³ The Missouri DHSS, Bureau of Immunizations has worked hard to incorporate the COVID-19 Vaccine into their ShowMeVax system. ShowMeVax is a system that is used by providers to track clients' immunizations through a centralized and integrated database.¹¹⁴

DHSS offers the following resources for all Missourians with questions about Covid-19:

- ◆ COVID-19 Virtual Assistant, visit: <https://info.mo.gov/covid/index.php>.
- ◆ Missouri Novel Coronavirus Information Hotline: Call (877) 435-8411.

Specific to Covid-19 Vaccines, DHSS offers the following resources:

- ◆ A [Get The Facts](https://covidvaccine.mo.gov/facts/) webpage, offering Covid-19 vaccine facts.
<https://covidvaccine.mo.gov/facts/>.
- ◆ A [Vaccinator Map](https://covidvaccine.mo.gov/map/), which is interactive and allows users to locate vaccination sites.
<https://covidvaccine.mo.gov/map/>.
- ◆ A webpage with information specific to [Residents](https://covidvaccine.mo.gov/residents/), which outlines vaccine facts to help inform decision-making. <https://covidvaccine.mo.gov/residents/>.
- ◆ A webpage with information specific for [Vaccinators](https://covidvaccine.mo.gov/vaccinators/)
(<https://covidvaccine.mo.gov/vaccinators/>), which includes:
 - Vaccinator Enrollment program access, vaccinator webinars and other resources;
 - Specific vaccine factsheets and recommendations;
 - Access to ShowMeVax and Vaccine Adverse Event Reporting System (VAERS); and
 - Access to COVID-19 vaccine printable, digital and messaging materials for public distribution.

Next Steps

Data Collection

Accurate provider data is critical for shortage designations. To ensure that Missouri provider information is accurate and up to date, the Missouri PCO plans to establish a Memorandum of Understanding (MOU) with the Missouri Department of Social Services (DSS) that would create a data agreement between the two departments allowing DSS to share Medicaid provider information with the PCO. This will assist with provider management efforts to ensure that the information in SDMS is correct and help the PCO more easily identify HPSAs and MUA/Ps in the State of Missouri.

Conclusion

Through the Missouri Statewide PCNA 2020, Missouri has identified areas with the greatest unmet health care needs and the additional barriers affecting Missourians. The data provided in this report illustrates the ongoing need to improve the health status and access to care for Missourians, especially in rural areas. The continued collaboration of the PCO with its partners and stakeholders demonstrates the ongoing effort to increase workforce recruitment and retention, while reducing the number of HPSAs and MUA/Ps.

Recognizing health equity and SDOH prospective for policy implications associated with accessibility as a fundamental move to focus on patients and considerations for health literacy, culturally competent communication, patient-centered standards, and simplifying and streamlining cost and complexity of the health care system.

Throughout the evaluation of the health indicators, it was evident that rural Missourians have the greatest unmet health care needs. However, all Missourians suffer from high mortality rates, chronic diseases, poor access to care and health behaviors, high levels of unmet health care needs, which exhibits the need for analysis of social systems and evaluation of resources, impactful programs and funding allocations to reduce and prevent poor health quality of Missourians.

Appendix A: Glossary of Terms

Age-Adjusted Rates

Age adjusting rates is a way to make fairer comparisons between groups with different age distributions. For example, a county having a higher percentage of elderly people may have a higher rate of death or hospitalization than a county with a younger population, merely because the elderly are more likely to die or be hospitalized. (The same distortion can happen when comparing races, genders, or time periods.) Age adjustment can make the different groups more comparable.

A "standard" population distribution is used to adjust death and hospitalization rates. The age-adjusted rates are rates that would have existed if the population under study had the same age distribution as the "standard" population. Therefore, they are summary measures adjusted for differences in age distributions.

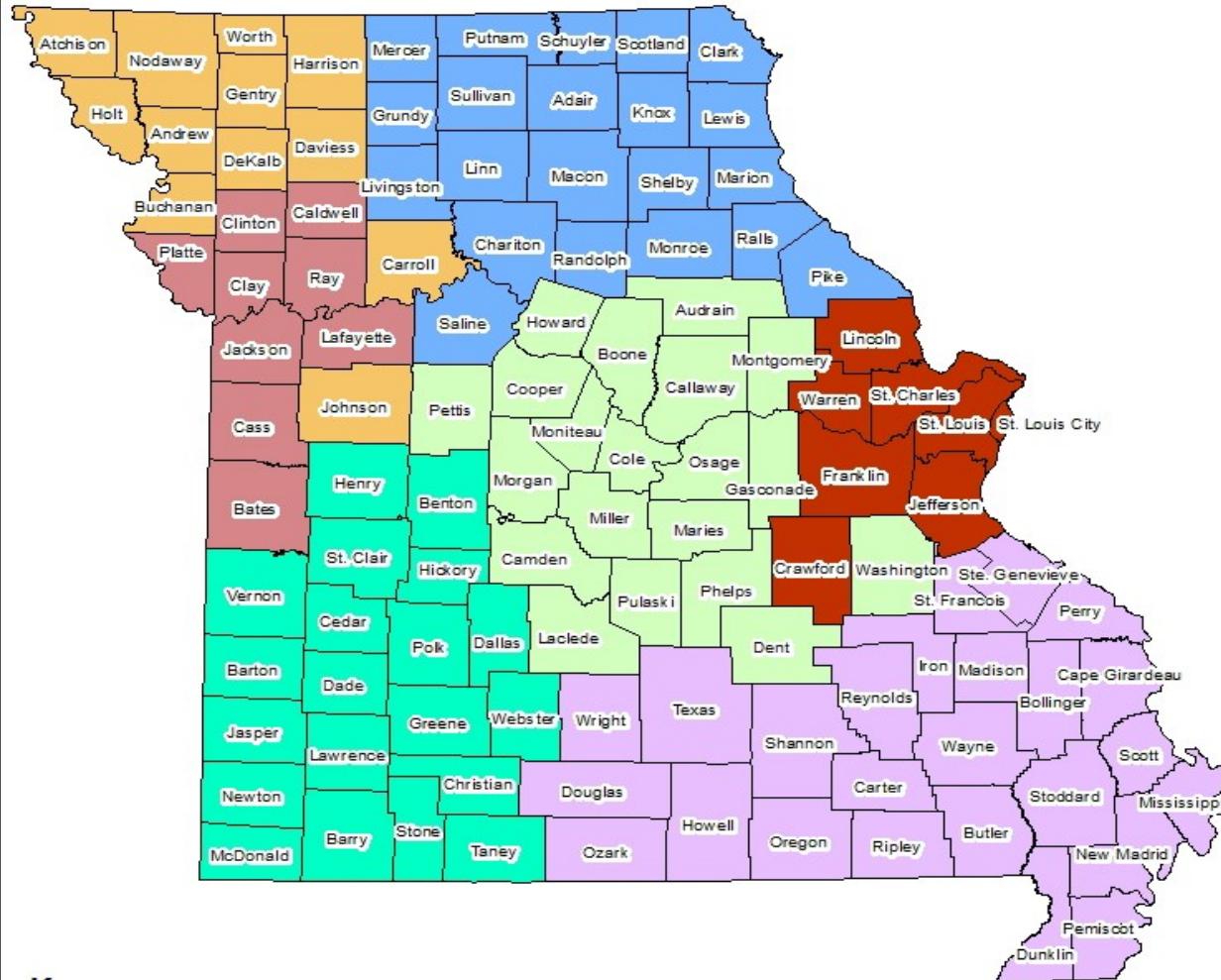
The National Center for Health Statistics recommends that the U.S. 2000 standard population be used when calculating age-adjusted rates. The U.S. 2000 standard population was used for all age-adjusted rates in this report unless otherwise noted.

When age-adjusted rates from different sources are compared, it is very important to verify that the same standard population was used in both sources. It is not legitimate to compare adjusted rates, which use different standard populations. Users of Missouri Information for Community Assessment (MICA) have the option of selecting age-adjusted rates based on the U.S. 1940, 1970 or 2000 standard populations when generating tables where age adjustment is utilized. Age-adjusted rates in the Community Data Profiles use the U.S. 2000 standard population. Age-adjusted rates published elsewhere (e.g., in the annual Missouri Vital Statistics) may be slightly different from those found in the MICAs or Community Data Profiles due to updating of population estimates for years between decennial Censuses.

The constant or "per population" number used for the age-adjusted rates may vary depending on the type of event. For example, the age-adjusted rates for deaths are reported per 100,000 residents. However, age-adjusted rates for hospitalizations and procedures are reported per 10,000 residents, and age-adjusted rates for emergency department visits are reported per 1,000 residents.

The use of different standard populations can also affect general trends in total mortality and cause of death and differences in mortality by race and gender. For more information on this topic see: "Effects of Changing from the 1940 to the Year 2000 Standard Population for Age-Adjusted Death Rates in Missouri": Missouri Monthly Vital Statistics, 33.12 (Feb. 2000).

BRFSS Regions



Key:

- Kansas City Metro Region
- Northeast Region
- Northwest Region
- Central Region
- Southwest Region
- St. Louis Metro Region
- Southeast Region

Source: <http://www.health.mo.gov/data/brfss/BRFSSRegionsMap.pdf>

Behavioral Risk Factor Surveillance System (BRFSS)

The Behavioral Risk Factor Surveillance System (BRFSS) is an annual landline and cell telephone survey that collects information on health risk behaviors, preventive health practices, and health care access from non-institutionalized adults ages 18 and older. The annual BRFSS sample size of over 6,000 Missouri residents produces prevalence estimates at the state and regional levels.

Body Mass Index

Body Mass Index (BMI) is an indicator of body fat. The Behavioral Risk Factor Surveillance System and Missouri County-Level Study derive Overweight (25.0 – 29.9 BMI) and Obese (≥ 30 BMI) indicators by calculating BMI using responses to the following questions:

- ◆ “About how much do you weigh without shoes?”
- ◆ “About how tall are you without shoes?”

Health People 2020

Healthy People 2020 objectives are health status targets for the entire U.S. Targets are set using baseline U.S. data. Objectives are organized into 42 topic areas, with Leading Health Indicators identified in 12 of these topic areas. Additional information about Healthy People 2020 is available at <http://www.healthypeople.gov/2020/default.aspx>.

Missouri Information for Community Assessment (MICA)

The Missouri Information for Community Assessment (MICA) allows users to summarize data, calculate rates, and prepare information in a graphic format. See Appendix C for additional information.

Missouri County-Level Study

The Missouri County-Level Study (CLS) is a BRFSS-like landline and cell telephone survey that was conducted in 2007 and 2011 with approximately 50,000 non-institutionalized adults ages 18 and older. Sufficient data were collected to produce prevalence estimates for each of the state's 114 counties and the City of St. Louis.

Resident

Resident means the person was a resident of Missouri at the time of the event in question (birth, death, emergency room visit, etc.). Data in the MICA (Missouri Information for Community Assessment) system are reported by resident status. For example, a record for a Missouri resident treated in a Kansas hospital would be reported as a Missouri hospitalization. Missouri receives vital records and hospital data from most of its border states.

Unstable Rates

Unstable rates are rates based on fewer than 20 events. They can be common for small population areas, such as certain counties, or for low-frequency events, such as cause-specific deaths or birth defects. If the use of data from one specified year is not required, combining multiple years of data can often generate a stable rate. Similarly, data from several counties can be combined to create a stable regional rate. In this report, multiple years of data were combined for indicators with unstable rates for a large number of counties.

Statistical Significance

Statistical significance tests are performed to determine whether the difference between two rates is probably the result of chance factors or if it is meaningful.

Appendix B: Greatest Unmet Need Ranking by County – Rank Order

County	Health Status Rank	Health Care Access Rank	Combined Rank Score	Overall Primary Care Needs Rank	BRFSS Region
Pemiscot	115	109	224	115	Southeastern Region
Iron	114	109	223	114	Southeastern Region
Ripley	104	115	219	113	Southeastern Region
Dunklin	113	99	212	112	Southeastern Region
Mississippi	110	99	209	111	Southeastern Region
Oregon	94	114	208	110	Southeastern Region
Wayne	98	109	207	109	Southeastern Region
Wright	97	107	204	108	Southeastern Region
New Madrid	110	93	203	107	Southeastern Region
Reynolds	101	99	200	106	Southeastern Region
Carter	101	98	199	105	Southeastern Region
Dent	91	107	198	103	Central Region
Shannon	89	109	198	103	Southeastern Region
Washington	108	89	197	102	Central Region
McDonald	91	99	190	100	Southwestern Region
Stoddard	109	81	190	100	Southeastern Region
Benton	94	93	187	98	Southwestern Region
Butler	112	75	187	98	Southeastern Region
Texas	85	99	184	97	Southeastern Region
St. Clair	85	97	182	96	Southwestern Region
Linn	104	75	179	94	Northeastern Region
Madison	98	81	179	94	Southeastern Region
Morgan	79	96	175	93	Central Region
Hickory	82	86	168	92	Southwestern Region
Laclede	104	62	166	91	Central Region
Ozark	52	109	161	90	Southeastern Region
Sullivan	61	99	160	88	Northeastern Region
Vernon	85	75	160	88	Southwestern Region
Crawford	84	75	159	87	St. Louis Metro
Montgomery	82	75	157	86	Central Region
Cedar	66	88	154	84	Southwestern Region
Stone	61	93	154	84	Southwestern Region
Scott	98	55	153	82	Southeastern Region
St. Francois	103	50	153	82	Southeastern Region
Douglas	44	106	150	81	Southeastern Region
Barry	58	89	147	79	Southwestern Region
Henry	104	43	147	79	Southwestern Region
Howell	76	70	146	78	Southeastern Region

Miller	56	89	145	77	Central Region
Bates	74	70	144	75	Kansas City Metro
Randolph	94	50	144	75	Northeastern Region
Dallas	44	99	143	73	Southwestern Region
Taney	68	75	143	73	Southwestern Region
Schuylerville	61	81	142	72	Northeastern Region
Harrison	74	67	141	71	Northwestern Region
Bollinger	70	67	137	70	Southeastern Region
Lawrence	76	55	131	69	Southwestern Region
St. Louis	79	50	129	68	St. Louis Metro
Shelby	85	43	128	67	Northeastern Region
Caldwell	61	64	125	65	Kansas City Metro
Grundy	44	81	125	65	Northeastern Region
Lewis	54	70	124	64	Northeastern Region
Pike	56	67	123	63	Northeastern Region
Daviess	33	89	122	62	Northwestern Region
Knox	40	81	121	61	Northeastern Region
Buchanan	93	26	119	59	Northwestern Region
Jasper	72	47	119	59	Southwestern Region
Barton	29	86	115	58	Southwestern Region
Ray	76	38	114	57	Kansas City Metro
Pulaski	89	22	111	56	Central Region
Mercer	40	70	110	55	Northeastern Region
Clark	44	64	108	53	Northeastern Region
Saline	68	40	108	53	Northeastern Region
Marion	72	33	105	52	Northeastern Region
Carroll	33	70	103	51	Northwestern Region
Audrain	58	43	101	50	Central Region
Polk	70	29	99	48	Southwestern Region
Worth	61	38	99	48	Northwestern Region
Webster	40	55	95	47	Southwestern Region
Ralls	44	50	94	46	Northeastern Region
Jefferson	79	11	90	45	St. Louis Metro
Maries	29	59	88	44	Central Region
Ste. Genevieve	54	33	87	43	Southeastern Region
Dade	25	59	84	40	Southwestern Region
Holt	29	55	84	40	Northwestern Region
Newton	44	40	84	40	Southwestern Region
Phelps	66	17	83	39	Central Region
Macon	18	63	81	38	Northeastern Region
Callaway	58	22	80	37	Central Region
Gentry	20	59	79	35	Northwestern Region

Lafayette	33	46	79	35	Kansas City Metro
Putnam	24	50	74	34	Northeastern Region
Gasconade	40	33	73	33	Central Region
Cooper	52	20	72	32	Central Region
DeKalb	33	36	69	31	Northwestern Region
Chariton	20	47	67	30	Northeastern Region
Scotland	1	64	65	29	Northeastern Region
Lincoln	33	29	62	27	St. Louis Metro
Pettis	33	29	62	27	Central Region
Jackson	33	26	59	26	Kansas City Metro
Atchison	15	40	55	25	Northwestern Region
Livingston	29	25	54	24	Northeastern Region
Franklin	44	9	53	22	St. Louis Metro
Monroe	6	47	53	22	Northeastern Region
Adair	25	26	51	19	Northeastern Region
Clinton	44	7	51	19	Kansas City Metro
Moniteau	15	36	51	19	Central Region
Howard	20	29	49	18	Central Region
Greene	25	15	40	17	Southwestern Region
Warren	15	22	37	16	St. Louis Metro
Cass	20	11	31	15	Kansas City Metro
Cape Girardeau	12	17	29	14	Southeastern Region
Clay	25	3	28	13	Kansas City Metro
Andrew	11	15	26	11	Northwestern Region
Perry	18	8	26	11	Southeastern Region
Johnson	13	11	24	10	Northwestern Region
Camden	3	20	23	8	Central Region
Nodaway	6	17	23	8	Northwestern Region
St. Louis City	13	6	19	7	St. Louis Metro
Christian	9	9	18	6	Southwestern Region
Osage	1	11	12	5	Central Region
St. Charles	9	2	11	4	St. Louis Metro
Boone	3	5	8	3	Central Region
Platte	6	1	7	2	Kansas City Metro
Cole	3	3	6	1	Central Region

Appendix C: Greatest Unmet Need Ranking by County – Alphabetical List

County	Health Status Rank	Health Care Access Rank	Combined Rank Score	Overall Primary Care Needs Rank	BRFSS Region
Adair	25	26	51	19	Northeastern Region
Andrew	11	15	26	11	Northwestern Region
Atchison	15	40	55	25	Northwestern Region
Audrain	58	43	101	50	Central Region
Barry	58	89	147	79	Southwestern Region
Barton	29	86	115	58	Southwestern Region
Bates	74	70	144	75	Kansas City Metro
Benton	94	93	187	98	Southwestern Region
Bollinger	70	67	137	70	Southeastern Region
Boone	3	5	8	3	Central Region
Buchanan	93	26	119	59	Northwestern Region
Butler	112	75	187	98	Southeastern Region
Caldwell	61	64	125	65	Kansas City Metro
Callaway	58	22	80	37	Central Region
Camden	3	20	23	8	Central Region
Cape Girardeau	12	17	29	14	Southeastern Region
Carroll	33	70	103	51	Northwestern Region
Carter	101	98	199	105	Southeastern Region
Cass	20	11	31	15	Kansas City Metro
Cedar	66	88	154	84	Southwestern Region
Chariton	20	47	67	30	Northeastern Region
Christian	9	9	18	6	Southwestern Region
Clark	44	64	108	53	Northeastern Region
Clay	25	3	28	13	Kansas City Metro
Clinton	44	7	51	19	Kansas City Metro
Cole	3	3	6	1	Central Region
Cooper	52	20	72	32	Central Region
Crawford	84	75	159	87	St. Louis Metro
Dade	25	59	84	40	Southwestern Region
Dallas	44	99	143	73	Southwestern Region
Daviess	33	89	122	62	Northwestern Region
DeKalb	33	36	69	31	Northwestern Region
Dent	91	107	198	103	Central Region
Douglas	44	106	150	81	Southeastern Region
Dunklin	113	99	212	112	Southeastern Region
Franklin	44	9	53	22	St. Louis Metro
Gasconade	40	33	73	33	Central Region

Gentry	20	59	79	35	Northwestern Region
Greene	25	15	40	17	Southwestern Region
Grundy	44	81	125	65	Northeastern Region
Harrison	74	67	141	71	Northwestern Region
Henry	104	43	147	79	Southwestern Region
Hickory	82	86	168	92	Southwestern Region
Holt	29	55	84	40	Northwestern Region
Howard	20	29	49	18	Central Region
Howell	76	70	146	78	Southeastern Region
Iron	114	109	223	114	Southeastern Region
Jackson	33	26	59	26	Kansas City Metro
Jasper	72	47	119	59	Southwestern Region
Jefferson	79	11	90	45	St. Louis Metro
Johnson	13	11	24	10	Northwestern Region
Knox	40	81	121	61	Northeastern Region
Laclede	104	62	166	91	Central Region
Lafayette	33	46	79	35	Kansas City Metro
Lawrence	76	55	131	69	Southwestern Region
Lewis	54	70	124	64	Northeastern Region
Lincoln	33	29	62	27	St. Louis Metro
Linn	104	75	179	94	Northeastern Region
Livingston	29	25	54	24	Northeastern Region
Macon	18	63	81	38	Northeastern Region
Madison	98	81	179	94	Southeastern Region
Maries	29	59	88	44	Central Region
Marion	72	33	105	52	Northeastern Region
McDonald	91	99	190	100	Southwestern Region
Mercer	40	70	110	55	Northeastern Region
Miller	56	89	145	77	Central Region
Mississippi	110	99	209	111	Southeastern Region
Moniteau	15	36	51	19	Central Region
Monroe	6	47	53	22	Northeastern Region
Montgomery	82	75	157	86	Central Region
Morgan	79	96	175	93	Central Region
New Madrid	110	93	203	107	Southeastern Region
Newton	44	40	84	40	Southwestern Region
Nodaway	6	17	23	8	Northwestern Region
Oregon	94	114	208	110	Southeastern Region
Osage	1	11	12	5	Central Region
Ozark	52	109	161	90	Southeastern Region
Pemiscot	115	109	224	115	Southeastern Region
Perry	18	8	26	11	Southeastern Region

Pettis	33	29	62	27	Central Region
Phelps	66	17	83	39	Central Region
Pike	56	67	123	63	Northeastern Region
Platte	6	1	7	2	Kansas City Metro
Polk	70	29	99	48	Southwestern Region
Pulaski	89	22	111	56	Central Region
Putnam	24	50	74	34	Northeastern Region
Ralls	44	50	94	46	Northeastern Region
Randolph	94	50	144	75	Northeastern Region
Ray	76	38	114	57	Kansas City Metro
Reynolds	101	99	200	106	Southeastern Region
Ripley	104	115	219	113	Southeastern Region
Saline	68	40	108	53	Northeastern Region
Schuyler	61	81	142	72	Northeastern Region
Scotland	1	64	65	29	Northeastern Region
Scott	98	55	153	82	Southeastern Region
Shannon	89	109	198	103	Southeastern Region
Shelby	85	43	128	67	Northeastern Region
St. Charles	9	2	11	4	St. Louis Metro
St. Clair	85	97	182	96	Southwestern Region
St. Francois	103	50	153	82	Southeastern Region
St. Louis	79	50	129	68	St. Louis Metro
St. Louis City	13	6	19	7	St. Louis Metro
Ste. Genevieve	54	33	87	43	Southeastern Region
Stoddard	109	81	190	100	Southeastern Region
Stone	61	93	154	84	Southwestern Region
Sullivan	61	99	160	88	Northeastern Region
Taney	68	75	143	73	Southwestern Region
Texas	85	99	184	97	Southeastern Region
Vernon	85	75	160	88	Southwestern Region
Warren	15	22	37	16	St. Louis Metro
Washington	108	89	197	102	Central Region
Wayne	98	109	207	109	Southeastern Region
Webster	40	55	95	47	Southwestern Region
Worth	61	38	99	48	Northwestern Region
Wright	97	107	204	108	Southeastern Region

Appendix D: MICA (Missouri Information for Community Assessment) System

MICA System Tools

Community Data Profiles are static tables and are available for various subject areas. Each Community Data Profile table provides data on 15-30 indicators for the county/city selected. Information provided includes data years, number of events, county/city rate, state rate, statistical significance (compared to the state), quintile ranking, links to additional graphing functions, and multiple downloading options.

MICA (Missouri Information for Community Assessment) datasets provide information on health conditions and associated topics. Users can choose from among the many conditions, generate data tables by year of occurrence, age, gender, race, and county or zip code of residence, and obtain age- adjusted rates. MICA also allows users to download tables into other applications in order to produce charts or graphs. Data for the MICAs are extracted and summarized from files maintained by the Missouri Department of Health and Senior Services. Frequencies are then pre-computed for each combination of the variables. This provides two major advantages: the response time to create and return a table is usually less than five seconds, and no individual record can be accessed. Confidentiality rules have been developed to protect the privacy of individuals.

Priorities MICA provides a structured process for determining the priority health needs within a community. This tool allows a user to select diseases or risk factors for prioritization and then choose criteria to be used to determine the priority health needs among those diseases or risk factors. Users can rate the level of community support for each disease/risk factor and the importance of each criterion. Priorities can be determined for the state of Missouri, individual counties, or selected cities/areas. A total weight is given to each disease/risk factor based on the user's choices, and the diseases/risk factors are then presented as a ranked list.

CHIR (Community Health Improvement Resources) is an interactive, evidence-based planning tool which incorporates its predecessor, Intervention MICA. It provides links to information and resources which can be used to design, implement, and evaluate interventions that improve the health of a community. CHIR includes seven steps: Partnerships, Assessment, Readiness, Capacity, Intervention, Evaluation, and Momentum.

Together these four tools can assist public health professionals with the process of continuous community health improvements.

Accessing the MICA Tools

Much of the health data included in this report may be accessed on the Missouri Department of Health and Senior Services (DHSS) Community Data Profiles and MICA webpages. Users can easily create different types of tables, charts, or maps pertaining to health indicators.

The following step-by-step guide offers instructions for accessing health data on the DHSS Community Data Profiles webpage.

1. Go to the DHSS Community Data Profiles webpage:
<http://health.mo.gov/data/CommunityDataProfiles/index.html>
2. From the topic list, select a Profile. Then use the pull-down geography menu to choose whether to view data by city, county, or at the state level. Data for BRFSS Regions are available for some topics. Click the Submit button.
3. The requested data table will appear.
4. The Trend Line and Comparison Bar Graph columns at the right side of the table provide links to available graphics. Users can select the Trend Line icon to create a graph showing three-year moving average trend lines for the selected geography and the state. Users can select the Comparison Bar Graphs icon to create a bar chart showing the rates for a specific indicator in selected geographies or compare indicators within a single geography.

The following step-by-step guide offers instructions on accessing data on the DHSS MICA webpage.

1. Go to the DHSS MICA webpage: <http://health.mo.gov/data/mica/MICA/>
2. Choose a topic from the list of MICA datasets.
3. Select a viewing option. Options may include county/city tables, maps, or zip code tables. Each option provides a query screen that allows users to customize the data output.

For more detailed information on using the Community Data Profiles and MICAs, please refer to the MICA User Handbook at <http://health.mo.gov/data/mica/MICA/CHAIPTTraining.html> or contact the DHSS Bureau of Health Care Analysis and Data Dissemination at 573-751-6272.

The Bureau also offers free health data trainings which are posted at <http://health.mo.gov/data/mica/MICA/healthdatatraining.html>. A quarterly newsletter describing data and feature updates is available through this link as well.

Appendix E: Health Status Quintile Points and Rankings by County

County	Life Expectancy	Years of Potential Life Lost	Ever Breastfed	Self-Reported Health Status	Obesity	Hypertension	High Cholesterol	Smoking	Diabetes	Asthma	Depressive Disorders	HIV/AIDS	Total Mortality	Infant Mortality	Heart Disease Mortality	Cancer Mortality	CLRD Mortality	Stroke Mortality	Total Quintile Points	Health Status Rank
Adair	1	3	1	2	1	5	1	1	2	4	3	4	2	2	1	3	3	4	43	25
Andrew	1	1	1	1	4	3	5	1	2	1	1	1	1	4	1	1	3	3	35	11
Atchison	2	1	1	2	2	1	4	3	5	2	2	1	2	1	1	2	5	2	39	15
Audrain	2	3	1	3	4	3	1	2	4	2	4	4	4	3	1	4	5	3	53	58
Barry	4	4	1	4	1	2	2	3	3	5	2	3	3	3	5	2	2	4	53	58
Barton	2	3	1	1	4	1	4	1	4	5	1	5	2	2	2	2	1	5	46	29
Bates	3	3	1	4	5	2	4	3	2	2	2	5	4	1	4	5	5	4	59	74
Benton	4	5	1	5	2	3	4	5	1	5	5	3	4	4	3	5	4	5	68	94
Bollinger	4	5	1	4	5	2	2	3	5	2	1	2	4	1	5	4	4	3	57	70
Boone	1	1	1	1	1	5	1	1	1	3	3	5	1	1	1	1	1	2	31	3
Buchanan	4	3	1	2	4	5	2	5	2	5	5	5	4	4	3	3	5	5	67	93
Butler	5	4	1	5	4	5	3	5	5	5	4	5	5	4	4	5	5	5	79	112
Caldwell	3	3	1	4	3	3	1	5	3	4	3	3	3	2	2	5	4	2	54	61
Callaway	2	2	1	3	5	5	3	4	2	5	5	3	2	4	1	2	3	1	53	58
Camden	2	2	1	1	1	3	2	3	2	1	2	2	1	2	2	1	2	1	31	3
Cape Girardeau	1	2	1	1	1	3	4	1	3	1	1	5	2	3	2	2	1	2	36	12
Carroll	3	2	1	4	5	3	3	2	3	1	2	1	4	2	5	2	2	2	47	33
Carter	5	5	1	5	2	2	5	5	5	2	5	1	5	5	3	5	5	5	71	101
Cass	1	2	1	1	3	5	2	3	3	2	3	4	1	1	1	2	3	3	41	20
Cedar	4	5	1	3	1	3	3	1	1	3	3	2	4	5	4	4	3	5	55	66
Chariton	1	1	1	2	3	5	4	2	5	1	1	2	1	4	2	3	1	2	41	20
Christian	1	1	1	2	1	3	2	1	1	2	5	3	1	2	1	1	1	5	34	9
Clark	4	1	1	5	2	4	3	1	4	2	1	1	3	1	4	4	5	3	49	44
Clay	1	1	2	1	1	4	5	1	4	4	4	5	1	2	1	2	3	1	43	25
Clinton	4	2	2	1	4	1	2	2	1	1	3	1	5	4	2	4	5	5	49	44
Cole	1	1	2	1	1	3	2	1	1	1	1	5	1	4	1	1	2	2	31	3
Cooper	3	2	2	3	4	4	1	2	2	2	2	3	3	5	5	3	2	2	50	52
Crawford	4	4	2	3	4	1	3	5	3	4	3	3	5	3	5	5	2	4	63	84
Dade	3	2	2	3	3	1	2	4	1	2	4	3	3	2	3	4	2	1	45	25
Dallas	3	4	2	3	3	2	1	5	2	3	3	3	3	2	1	3	4	2	49	44
Daviess	2	1	2	3	3	5	2	3	1	2	3	1	2	2	3	4	3	5	47	33
DeKalb	1	1	2	2	3	5	3	3	5	3	2	2	1	4	2	1	4	3	47	33
Dent	5	4	2	5	3	2	5	5	3	4	4	1	4	5	2	3	4	5	66	91
Douglas	2	2	2	5	4	1	4	3	3	3	3	4	2	3	1	1	5	1	49	44
Dunklin	5	4	2	5	4	5	3	5	4	5	5	5	5	5	5	5	5	5	82	113
Franklin	3	3	2	2	3	1	4	2	4	1	5	3	3	3	3	3	2	2	49	44
Gasconade	3	2	2	3	4	2	5	3	3	2	4	3	3	1	1	2	2	3	48	40
Gentry	1	2	2	2	2	5	3	2	3	4	1	1	2	1	3	1	4	2	41	20
Greene	2	3	2	1	3	1	3	1	3	4	4	5	2	3	2	1	2	3	45	25

County	Life Expectancy	Years of Potential Life Lost	Ever Breastfed	Self-Reported Health Status	Obesity	Hypertension	High Cholesterol	Smoking	Diabetes	Asthma	Depressive Disorders	HIV/AIDS	Total Mortality	Infant Mortality	Heart Disease Mortality	Cancer Mortality	CLRD Mortality	Stroke Mortality	Total Quintile Points	Health Status Rank
Grundy	4	4	2	4	1	2	2	4	2	1	4	2	3	5	2	4	2	1	49	44
Harrison	3	1	2	5	2	3	5	4	5	5	4	2	3	3	4	3	3	2	59	74
Henry	5	4	2	4	5	2	5	5	3	2	4	4	5	4	5	5	4	5	73	104
Hickory	4	5	2	4	5	5	5	5	2	2	4	2	3	5	1	3	2	3	62	82
Holt	2	3	2	4	4	5	5	2	3	3	2	1	1	3	1	1	3	1	46	29
Howard	1	4	2	1	1	4	1	4	3	3	1	5	1	1	3	1	1	4	41	20
Howell	5	4	2	4	3	1	2	2	3	3	4	3	5	3	3	4	4	5	60	76
Iron	5	5	3	5	5	3	5	5	5	5	5	4	5	3	5	5	5	5	83	114
Jackson	3	3	3	2	1	1	2	2	4	3	3	5	3	3	1	3	2	3	47	33
Jasper	4	3	3	4	3	3	1	2	2	5	4	5	4	1	5	3	4	2	58	72
Jefferson	3	3	3	3	1	1	5	4	3	4	5	4	4	2	4	4	4	4	61	79
Johnson	2	1	3	1	2	4	1	2	1	1	1	4	2	2	4	3	2	2	38	13
Knox	3	1	3	1	5	5	5	1	1	4	1	3	3	1	2	4	3	2	48	40
Laclede	4	3	3	4	4	4	5	4	4	4	5	4	4	5	4	3	5	4	73	104
Lafayette	2	3	3	2	1	2	1	4	2	4	2	4	2	4	3	2	3	3	47	33
Lawrence	3	4	3	2	5	5	3	3	3	1	5	3	4	4	2	2	4	4	60	76
Lewis	1	4	3	3	3	1	2	4	4	4	1	2	2	3	5	3	1	5	51	54
Lincoln	3	2	3	2	3	5	1	2	2	3	2	3	4	2	3	3	2	2	47	33
Linn	4	4	3	5	5	3	4	3	5	3	4	5	5	2	5	4	5	4	73	104
Livingston	2	3	3	3	1	2	4	2	2	3	4	1	2	3	2	3	4	2	46	29
Macon	2	3	3	1	2	1	1	4	1	3	2	4	2	2	3	1	1	4	40	18
Madison	5	4	3	4	4	4	4	3	2	5	3	2	5	4	5	5	5	3	70	98
Maries	2	5	3	3	4	4	5	1	2	1	1	3	2	1	4	2	2	1	46	29
Marion	3	2	3	3	5	1	3	4	4	4	3	4	3	3	3	3	4	3	58	72
McDonald	5	4	3	3	2	3	3	4	2	4	3	4	5	5	4	5	5	2	66	91
Mercer	1	5	3	2	5	4	3	3	3	3	1	1	1	5	2	3	2	1	48	40
Miller	3	2	3	2	4	3	4	5	4	2	2	3	3	1	4	3	3	1	52	56
Mississippi	5	5	3	5	5	1	1	4	5	5	5	5	5	5	5	5	4	5	78	110
Moniteau	2	1	3	3	2	3	4	1	1	4	2	2	2	3	2	1	2	1	39	15
Monroe	1	2	3	1	4	5	2	2	1	1	1	2	1	1	2	1	2	1	33	6
Montgomery	4	5	4	2	4	3	3	5	2	4	2	4	4	1	5	4	4	2	62	82
Morgan	4	3	4	3	2	4	5	2	4	2	3	2	5	2	4	4	3	5	61	79
New Madrid	5	5	4	5	3	2	5	2	5	4	5	5	5	5	5	5	5	3	78	110
Newton	3	3	4	4	2	2	1	2	2	2	3	2	4	3	4	3	2	3	49	44
Nodaway	1	1	4	2	3	4	2	1	3	1	2	2	1	1	2	1	1	1	33	6
Oregon	5	5	4	5	5	5	1	3	5	4	4	2	4	5	5	1	1	4	68	94
Osage	1	1	4	1	2	4	1	1	1	1	2	1	1	3	3	1	1	1	30	1
Ozark	5	4	4	3	2	2	2	2	1	2	3	4	3	2	3	4	1	3	50	52
Pemiscot	5	5	4	5	5	1	3	5	5	5	5	5	5	5	5	5	5	5	83	115
Perry	2	1	4	2	3	1	3	5	1	3	3	1	2	1	3	2	1	2	40	18

County	Life Expectancy	Years of Potential Life Lost	Ever Breastfed	Self-Reported Health Status	Obesity	Hypertension	High Cholesterol	Smoking	Diabetes	Asthma	Depressive Disorders	HIV/AIDS	Total Mortality	Infant Mortality	Heart Disease Mortality	Cancer Mortality	CLRD Mortality	Stroke Mortality	Total Quintile Points	Health Status Rank
Pettis	2	2	4	1	1	5	3	2	4	2	1	4	3	1	2	5	2	3	47	33
Phelps	5	4	4	1	2	4	1	2	4	3	1	3	4	4	3	2	3	5	55	66
Pike	2	3	4	3	2	4	3	3	5	1	1	2	3	1	4	4	4	3	52	56
Platte	3	1	4	1	1	1	1	1	1	2	5	5	1	2	1	1	1	1	33	6
Polk	5	2	4	5	4	1	5	2	4	1	4	2	4	2	2	1	4	5	57	70
Pulaski	1	1	4	5	2	1	4	4	4	5	4	5	4	4	4	4	4	5	65	89
Putnam	3	5	4	3	3	4	2	1	1	1	1	1	2	4	1	4	1	1	42	24
Ralls	1	1	4	5	5	3	2	5	5	2	2	1	1	5	1	4	1	1	49	44
Randolph	2	5	4	4	5	4	4	4	5	5	3	2	4	2	3	5	3	4	68	94
Ray	4	4	4	3	3	5	4	4	4	1	2	2	4	3	4	4	4	1	60	76
Reynolds	3	4	4	3	5	4	4	4	5	5	5	2	4	4	4	2	5	4	71	101
Ripley	1	5	4	5	4	2	4	5	5	4	5	1	5	3	5	5	5	5	73	104
Saline	4	2	4	2	2	1	4	3	5	3	3	4	2	4	2	4	3	4	56	68
Schuyler	4	1	5	2	5	2	5	5	4	1	1	1	2	4	2	3	4	3	54	61
Scotland	2	2	5	1	1	3	2	1	1	1	1	1	1	1	1	2	3	1	30	1
Scott	1	3	5	4	4	2	4	4	5	3	2	5	5	5	4	5	5	4	70	98
Shannon	4	4	5	4	3	4	2	3	4	5	3	3	3	5	3	3	3	4	65	89
Shelby	4	5	5	3	5	3	5	3	2	4	4	2	3	5	4	2	1	4	64	85
St. Charles	5	1	5	1	2	1	1	1	3	3	1	4	1	1	1	1	1	1	34	9
St. Clair	5	2	5	5	1	5	1	4	4	5	5	3	3	3	5	2	2	4	64	85
St. Francois	2	4	5	4	4	2	4	4	4	5	4	4	5	3	5	5	5	3	72	103
St. Louis City	3	5	5	2	2	3	1	3	3	2	3	5	5	5	4	5	1	4	61	79
St. Louis County	2	2	5	1	1	4	2	1	1	3	2	5	1	3	1	1	1	2	38	13
Ste. Genevieve	5	1	5	2	2	4	3	3	1	4	4	3	2	1	3	2	3	3	51	54
Stoddard	4	3	5	5	5	3	5	5	5	4	5	1	5	2	4	5	5	5	76	109
Stone	3	4	5	4	2	4	3	5	1	3	5	3	1	4	3	2	1	1	54	61
Sullivan	1	3	5	4	5	2	4	4	3	3	2	4	3	1	4	1	3	2	54	61
Taney	5	4	5	2	1	2	3	4	5	1	5	5	1	4	5	2	1	1	56	68
Texas	5	2	5	4	4	4	4	3	2	5	5	1	3	5	3	2	3	4	64	85
Vernon	5	5	5	4	3	5	1	3	2	5	2	4	4	4	4	3	2	3	64	85
Warren	1	2	5	1	2	2	3	2	4	3	3	2	1	2	2	2	1	1	39	15
Washington	2	5	5	5	5	2	5	5	4	4	4	4	5	2	5	5	4	3	74	108
Wayne	4	5	5	5	1	4	1	5	3	5	5	1	5	5	2	5	5	4	70	98
Webster	2	3	5	2	3	2	2	4	1	1	2	4	2	4	3	1	3	4	48	40
Worth	3	5	5	4	1	1	5	1	5	2	1	3	2	5	1	4	4	2	54	61
Wright	2	5	5	5	3	5	5	1	2	5	4	1	5	5	5	4	3	4	69	97

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Appendix F: Health Access Quintile Points and Rankings by County

County	Poverty	Uninsured	Medicaid Enrollment	Medicare Enrollment	Inadequate Prenatal Care	Low Birth Weight	Mammogram Screenings	Pap Smear Screenings	Sigmoidoscopy & Colonoscopy Screenings	Preventable Hospitalization	Dental Visit in the Past Two Years	Dental ER Visits	Population to PC Provider Ratio	Population to Mental Health Care Provider Ratio	Population to Dentist Ratio	Total Quintile Points	Health Care Access Rank
Adair	5	1	2	1	2	3	5	4	5	2	1	1	1	1	1	35	26
Andrew	1	1	1	1	1	2	3	1	1	1	1	1	5	5	4	29	15
Atchison	1	2	1	5	1	1	3	5	4	2	2	2	5	4	2	40	40
Audrain	4	2	3	2	5	4	3	1	2	1	4	4	2	1	3	41	43
Barry	4	5	4	3	4	3	4	5	5	3	4	4	2	3	3	56	89
Barton	4	4	4	4	2	4	2	2	4	5	4	4	3	3	5	54	86
Bates	2	3	3	3	3	1	5	5	4	5	3	3	4	5	2	51	70
Benton	5	4	3	5	4	3	3	2	2	5	5	5	4	3	4	57	93
Bollinger	3	4	4	3	1	2	5	4	3	2	3	3	5	4	4	50	67
Boone	4	1	1	1	1	4	1	1	1	2	1	1	1	1	1	22	5
Buchanan	3	2	3	2	3	4	3	3	2	5	1	1	1	1	1	35	26
Butler	5	3	5	4	4	5	2	4	2	5	5	5	1	1	1	52	75
Caldwell	2	2	3	2	2	4	5	2	2	3	4	4	4	5	5	49	64
Callaway	1	1	2	2	1	3	2	2	2	3	3	3	3	1	4	33	22
Camden	2	4	1	5	2	1	2	2	3	1	2	2	1	2	2	32	20
Cape Girardeau	2	1	2	2	2	4	2	3	3	1	3	3	1	1	1	31	17
Carroll	2	3	2	5	3	4	5	1	5	4	3	3	3	5	3	51	70
Carter	5	5	5	4	5	1	4	2	4	5	5	5	5	2	3	60	98
Cass	1	1	1	1	2	2	2	3	2	2	1	1	4	3	2	28	11
Cedar	4	4	4	5	5	1	3	4	5	2	4	4	4	3	3	55	88
Chariton	2	2	2	4	1	2	3	3	3	3	3	3	5	4	3	43	47
Christian	1	1	1	1	2	1	4	3	1	1	2	2	2	2	3	27	9
Clark	3	4	3	3	3	2	4	2	5	4	2	2	4	5	3	49	64
Clay	1	1	1	1	2	1	1	2	1	3	1	1	1	2	1	20	3
Clinton	1	1	1	1	1	2	1	2	2	3	1	1	2	4	1	24	7
Cole	1	1	2	1	2	4	1	1	1	1	1	1	1	1	1	20	3
Cooper	2	2	2	2	2	2	1	2	1	2	3	3	3	2	3	32	20
Crawford	3	4	4	3	2	3	3	3	3	2	5	5	3	4	5	52	75
Dade	4	4	3	5	3	2	2	3	3	1	3	3	2	3	5	46	59
Dallas	3	5	4	4	4	4	5	5	3	2	5	5	5	4	3	61	99
Davies	3	5	3	3	5	1	4	5	2	3	4	4	5	5	4	56	89
DeKalb	3	1	1	1	1	1	4	2	3	3	2	2	4	5	5	38	36
Dent	5	5	5	4	4	5	3	5	4	3	5	5	5	2	3	63	107

County	Poverty	Uninsured	Medicaid Enrollment	Medicare Enrollment	Inadequate Prenatal Care	Low Birth Weight	Mammogram Screenings	Pap Smear Screenings	Sigmoidoscopy & Colonoscopy Screenings	Preventable Hospitalization	Dental Visit in the Past Two Years	Dental ER Visits	Population to PC Provider Ratio	Population to Mental Health Care Provider Ratio	Population to Dentist Ratio	Total Quintile Points	Health Care Access Rank
Douglas	5	5	5	5	5	1	5	5	5	1	5	5	5	3	2	62	106
Dunklin	5	3	5	4	5	5	3	4	4	5	5	5	3	1	4	61	99
Franklin	1	1	2	2	1	3	2	4	1	2	1	1	2	2	2	27	9
Gasconade	1	2	2	5	1	3	1	4	3	3	1	1	3	3	4	37	33
Gentry	3	2	3	3	4	2	2	4	4	4	2	2	4	5	2	46	59
Greene	3	2	2	2	4	2	2	2	1	4	1	1	1	1	1	29	15
Grundy	4	4	3	4	5	4	4	4	5	2	3	3	4	2	2	53	81
Harrison	3	4	4	4	4	3	5	4	3	3	3	3	3	2	2	50	67
Henry	4	3	4	5	3	4	1	3	1	4	3	3	1	1	1	41	43
Hickory	4	5	3	5	4	5	1	1	4	1	4	4	5	4	4	54	86
Holt	2	3	1	5	1	1	5	2	4	4	3	3	4	4	3	45	55
Howard	2	3	2	2	1	4	2	4	1	2	2	2	3	3	3	36	29
Howell	5	3	5	4	2	2	5	5	5	3	4	4	1	1	2	51	70
Iron	5	3	5	5	5	5	5	5	3	5	5	5	3	2	3	64	109
Jackson	2	3	3	1	5	5	2	2	2	5	1	1	1	1	1	35	26
Jasper	4	4	4	1	3	2	2	4	5	4	3	3	2	1	1	43	47
Jefferson	1	1	1	1	1	3	1	2	1	3	2	2	4	3	2	28	11
Johnson	2	1	1	1	2	2	4	2	2	3	1	1	2	2	2	28	11
Knox	4	5	2	4	5	1	5	1	3	1	5	5	4	4	4	53	81
Laclede	3	4	5	3	4	3	2	4	5	3	2	2	2	2	3	47	62
Lafayette	1	1	2	3	2	3	5	5	2	5	2	2	4	2	3	42	46
Lawrence	3	4	4	3	4	2	2	1	3	3	5	5	2	2	2	45	55
Lewis	3	2	2	3	3	5	5	3	5	1	3	3	5	3	5	51	70
Lincoln	1	1	2	1	2	3	2	3	2	4	1	1	5	3	5	36	29
Linn	4	3	3	5	3	4	3	2	3	5	3	3	3	4	4	52	75
Livingston	3	2	2	3	1	3	1	2	4	4	2	2	1	3	1	34	25
Macon	2	2	3	5	4	3	3	3	3	4	4	4	3	3	2	48	63
Madison	4	3	5	5	4	4	2	4	1	4	4	4	3	2	4	53	81
Maries	2	5	1	3	3	1	4	5	1	1	4	4	5	4	3	46	59
Marion	2	1	4	3	4	3	2	1	3	3	4	4	1	1	1	37	33
McDonald	4	5	4	1	5	3	5	4	5	3	4	4	5	5	4	61	99
Mercer	2	5	1	3	5	3	5	4	3	1	3	3	4	5	4	51	70
Miller	4	3	4	2	1	4	3	5	5	2	5	5	4	5	4	56	89
Mississippi	5	3	5	3	3	5	3	5	1	5	4	4	5	5	5	61	99
Moniteau	1	5	1	1	3	1	3	3	1	1	2	2	5	5	4	38	36

County	Poverty	Uninsured	Medicaid Enrollment	Medicare Enrollment	Inadequate Prenatal Care	Low Birth Weight	Mammogram Screenings	Pap Smear Screenings	Sigmoidoscopy & Colonoscopy Screenings	Preventable Hospitalization	Dental Visit in the Past Two Years	Dental ER Visits	Population to PC Provider Ratio	Population to Mental Health Care Provider Ratio	Population to Dentist Ratio	Total Quintile Points	Health Care Access Rank
Monroe	2	3	3	4	4	1	1	1	4	4	2	2	3	5	4	43	47
Montgomery	2	3	3	4	3	1	3	3	1	5	5	5	4	5	52	75	
Morgan	3	5	4	5	3	2	4	3	3	2	5	5	4	5	5	58	96
New Madrid	4	3	5	3	3	5	2	4	4	5	2	2	5	5	5	57	93
Newton	3	5	3	2	3	2	1	1	4	2	2	2	2	4	4	40	40
Nodaway	5	2	1	1	1	2	4	1	5	1	1	1	2	2	2	31	17
Oregon	5	4	5	5	3	5	4	5	4	2	5	5	3	5	5	65	114
Osage	1	1	1	1	1	3	1	1	1	2	1	1	5	5	3	28	11
Ozark	5	5	5	5	5	5	4	4	5	1	5	5	5	3	2	64	109
Pemiscot	5	2	5	3	5	5	3	5	5	5	5	5	4	2	5	64	109
Perry	1	1	2	2	1	1	1	3	2	2	1	1	3	3	2	26	8
Pettis	4	4	4	2	4	1	1	2	3	2	2	2	2	2	1	36	29
Phelps	4	4	3	2	2	3	1	1	1	3	2	2	1	1	1	31	17
Pike	3	2	2	2	5	4	2	1	4	4	4	4	4	5	4	50	67
Platte	1	1	1	1	2	1	1	1	1	1	1	1	1	2	1	17	1
Polk	3	3	3	2	2	1	3	3	3	2	3	3	1	1	3	36	29
Pulaski	3	2	1	1	4	2	4	2	4	1	2	2	3	1	1	33	22
Putnam	2	4	3	5	3	4	4	2	3	4	1	1	2	4	2	44	50
Ralls	1	2	1	4	3	5	4	3	2	1	2	2	5	4	5	44	50
Randolph	4	2	4	2	2	4	3	3	1	4	4	4	2	3	2	44	50
Ray	1	2	1	2	3	2	3	1	2	4	2	2	4	5	5	39	38
Reynolds	5	4	5	5	4	5	5	4	5	5	5	5	2	1	1	61	99
Ripley	5	5	5	4	4	5	4	5	4	5	5	5	2	3	5	66	115
Saline	3	3	4	2	1	4	1	5	2	4	2	2	2	2	3	40	40
Schuylerville	4	4	3	2	5	3	5	3	5	3	3	3	1	5	4	53	81
Scotland	2	5	2	1	5	1	5	4	5	1	4	4	1	4	5	49	64
Scott	5	2	5	4	2	5	3	5	2	5	1	1	2	2	1	45	55
Shannon	5	5	5	4	2	5	5	5	4	1	5	5	4	5	4	64	109
Shelby	2	4	4	4	3	3	2	1	3	2	2	2	3	3	3	41	43
St. Charles	1	1	1	1	1	2	1	1	1	1	1	1	2	2	1	18	2
St. Clair	4	5	4	5	4	2	4	3	5	4	4	4	2	5	4	59	97
St. Francois	4	2	4	3	4	4	3	4	1	5	3	3	1	1	2	44	50
St. Louis City	5	3	5	5	5	5	1	1	2	5	2	2	1	1	1	44	50
St. Louis County	1	1	1	1	2	5	1	1	1	4	1	1	1	1	1	23	6
Ste. Genevieve	1	2	2	3	1	5	1	2	2	1	3	3	3	3	5	37	33

County	Poverty	Uninsured	Medicaid Enrollment	Medicare Enrollment	Inadequate Prenatal Care	Low Birth Weight	Mammogram Screenings	Pap Smear Screenings	Sigmoidoscopy & Colonoscopy Screenings	Preventable Hospitalization	Dental Visit in the Past Two Years	Dental ER Visits	Population to PC Provider Ratio	Population to Mental Health Care Provider Ratio	Population to Dentist Ratio	Total Quintile Points	Health Care Access Rank
Stoddard	3	3	5	4	1	4	4	2	3	5	4	4	3	4	4	53	81
Stone	2	4	2	5	5	5	2	5	4	2	4	4	4	4	5	57	93
Sullivan	3	5	4	3	3	4	5	3	5	5	4	4	4	4	5	61	99
Taney	3	5	3	4	4	4	4	4	4	4	3	3	1	3	3	52	75
Texas	5	5	4	3	4	3	5	5	5	3	4	4	2	4	5	61	99
Vernon	4	3	4	3	3	1	4	4	5	4	5	5	3	1	3	52	75
Warren	1	1	2	2	2	2	1	1	2	3	1	1	5	4	5	33	22
Washington	5	3	5	2	5	5	2	3	4	4	4	4	4	4	2	56	89
Wayne	5	4	5	4	5	3	3	5	4	5	5	5	3	3	5	64	109
Webster	2	4	3	2	5	1	4	3	2	2	3	3	3	4	4	45	55
Worth	2	2	2	4	1	5	4	1	2	3	3	3	2	3	2	39	38
Wright	5	5	5	4	5	2	5	5	4	4	5	5	5	2	2	63	107

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Appendix G

M.D. & D.O. Primary Care by County

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AMA Physician Masterfile 2018; Census County Pop. Estimates 2019

Selected Filters: 2019-2020 / Physicians, Primary Care (County Level File) / Population, All (County Level File)

County	Physicians, Primary Care (County Level File)	Population, All (County Level File)	Rate (per 100,000 population)
Adair County, MO	35	25,343	138.11
Andrew County, MO	2	17,712	11.29
Atchison County, MO	2	5,143	38.89
Audrain County, MO	14	25,388	55.14
Barry County, MO	23	35,789	64.27
Barton County, MO	4	11,754	34.03
Bates County, MO	4	16,172	24.73
Benton County, MO	5	19,443	25.72
Bollinger County, MO	1	12,133	8.24
Boone County, MO	329	180,463	182.31
Buchanan County, MO	60	87,364	68.68
Butler County, MO	47	42,478	110.65
Caldwell County, MO	1	9,020	11.09
Callaway County, MO	18	44,743	40.23
Camden County, MO	40	46,305	86.38
Cape Girardeau County, MO	78	78,871	98.90
Carroll County, MO	4	8,679	46.09
Carter County, MO	1	5,982	16.72
Cass County, MO	25	105,780	23.63
Cedar County, MO	4	14,349	27.88
Chariton County, MO	1	7,426	13.47
Christian County, MO	43	88,595	48.54
Clark County, MO	3	6,797	44.14
Clay County, MO	185	249,948	74.02
Clinton County, MO	11	20,387	53.96
Cole County, MO	51	76,745	66.45
Cooper County, MO	9	17,709	50.82
Crawford County, MO	0	23,920	0.00
Dade County, MO	6	7,561	79.35
Dallas County, MO	1	16,878	5.92
Daviess County, MO	2	8,278	24.16
DeKalb County, MO	3	12,547	23.91
Dent County, MO	5	15,573	32.11
Douglas County, MO	2	13,185	15.17
Dunklin County, MO	13	29,131	44.63

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County	Physicians, Primary Care (County Level File)	Population, All (County Level File)	Rate (per 100,000 population)
Franklin County, MO	69	103,967	66.37
Gasconade County, MO	7	14,706	47.60
Gentry County, MO	2	6,571	30.44
Greene County, MO	316	293,086	107.82
Grundy County, MO	3	9,850	30.46
Harrison County, MO	3	8,352	35.92
Henry County, MO	18	21,824	82.48
Hickory County, MO	1	9,544	10.48
Holt County, MO	1	4,403	22.71
Howard County, MO	5	10,001	50.00
Howell County, MO	39	40,117	97.22
Iron County, MO	1	10,125	9.88
Jackson County, MO	821	703,011	116.78
Jasper County, MO	111	121,328	91.49
Jefferson County, MO	59	225,081	26.21
Johnson County, MO	23	54,062	42.54
Knox County, MO	1	3,959	25.26
Laclede County, MO	22	35,723	61.59
Lafayette County, MO	9	32,708	27.52
Lawrence County, MO	22	38,355	57.36
Lewis County, MO	3	9,776	30.69
Lincoln County, MO	7	59,013	11.86
Linn County, MO	5	11,920	41.95
Livingston County, MO	12	15,227	78.81
Macon County, MO	5	15,117	33.08
Madison County, MO	4	12,088	33.09
Maries County, MO	0	8,697	0.00
Marion County, MO	29	28,530	101.65
McDonald County, MO	3	22,837	13.14
Mercer County, MO	1	3,617	27.65
Miller County, MO	8	25,619	31.23
Mississippi County, MO	5	13,180	37.94
Moniteau County, MO	2	16,132	12.40
Monroe County, MO	4	8,644	46.27
Montgomery County, MO	2	11,551	17.31
Morgan County, MO	4	20,627	19.39
New Madrid County, MO	2	17,076	11.71
Newton County, MO	8	58,236	13.74
Nodaway County, MO	11	22,092	49.79
Oregon County, MO	0	10,529	0.00
Osage County, MO	3	13,615	22.03

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County	Physicians, Primary Care (County Level File)	Population, All (County Level File)	Rate (per 100,000 population)
zark County, MO	2	9,174	21.80
Pemiscot County, MO	6	15,805	37.96
Perry County, MO	10	19,136	52.26
Pettis County, MO	24	42,339	56.69
Phelps County, MO	42	44,573	94.23
Pike County, MO	7	18,302	38.25
Platte County, MO	93	104,418	89.07
Polk County, MO	26	32,149	80.87
Pulaski County, MO	21	52,607	39.92
Putnam County, MO	2	4,696	42.59
Ralls County, MO	2	10,309	19.40
Randolph County, MO	9	24,748	36.37
Ray County, MO	8	23,018	34.76
Reynolds County, MO	3	6,270	47.85
Ripley County, MO	4	13,288	30.10
Saline County, MO	13	22,761	57.12
Schuylerville County, MO	3	4,660	64.38
Scotland County, MO	6	4,902	122.40
Scott County, MO	23	38,280	60.08
Shannon County, MO	0	8,166	0.00
Shelby County, MO	0	5,930	0.00
St. Charles County, MO	196	402,022	48.75
St. Clair County, MO	3	9,397	31.93
St. Francois County, MO	47	67,215	69.92
St. Louis City, MO	564	300,576	187.64
St. Louis County, MO	1,503	994,205	151.18
Ste. Genevieve County, MO	8	17,894	44.71
Stoddard County, MO	15	29,025	51.68
Stone County, MO	11	31,952	34.43
Sullivan County, MO	2	6,089	32.85
Taney County, MO	45	55,928	80.46
Texas County, MO	11	25,398	43.31
Vernon County, MO	9	20,563	43.77
Warren County, MO	5	35,649	14.03
Washington County, MO	8	24,730	32.35
Wayne County, MO	4	12,873	31.07
Webster County, MO	9	39,592	22.73
Worth County, MO	1	2,013	49.68
Wright County, MO	4	18,289	21.87

**M.D & D.O. Total General Practice
(General Practice & Family Medicine) by County**

data.HRSA.gov

AMA Physician Masterfile 2018; Census County Pop. Estimates 2019

Selected Filters: 2019-2020 / D.O., Total General Practice (County Level File) / Population, All (County Level File)

County	Physicians, Total General Practice (County Level File)	Population, All (County Level File)	Rate (per 100,000 population)
Adair County, MO	25	25,343	98.65
Andrew County, MO	2	17,712	11.29
Atchison County, MO	2	5,143	38.89
Audrain County, MO	7	25,388	27.57
Barry County, MO	22	35,789	61.47
Barton County, MO	3	11,754	25.52
Bates County, MO	4	16,172	24.73
Benton County, MO	5	19,443	25.72
Bollinger County, MO	0	12,133	0.00
Boone County, MO	146	180,463	80.90
Buchanan County, MO	33	87,364	37.77
Butler County, MO	16	42,478	37.67
Caldwell County, MO	0	9,020	0.00
Callaway County, MO	15	44,743	33.52
Camden County, MO	30	46,305	64.79
Cape Girardeau County, MO	42	78,871	53.25
Carroll County, MO	3	8,679	34.57
Carter County, MO	1	5,982	16.72
Cass County, MO	19	105,780	17.96
Cedar County, MO	4	14,349	27.88
Chariton County, MO	1	7,426	13.47
Christian County, MO	25	88,595	28.22
Clark County, MO	3	6,797	44.14
Clay County, MO	91	249,948	36.41
Clinton County, MO	8	20,387	39.24
Cole County, MO	30	76,745	39.09
Cooper County, MO	7	17,709	39.53
Crawford County, MO	0	23,920	0.00
Dade County, MO	6	7,561	79.35
Dallas County, MO	1	16,878	5.92
Daviess County, MO	1	8,278	12.08
DeKalb County, MO	3	12,547	23.91
Dent County, MO	2	15,573	12.84
Douglas County, MO	1	13,185	7.58
Dunklin County, MO	9	29,131	30.89

*

County	Physicians, Total General Practice (County Level File)	Population, All (County Level File)	Rate (per 100,000 population)
Franklin County, MO	33	103,967	31.74
Gasconade County, MO	4	14,706	27.20
Gentry County, MO	2	6,571	30.44
Greene County, MO	168	293,086	57.32
Grundy County, MO	2	9,850	20.30
Harrison County, MO	3	8,352	35.92
Henry County, MO	16	21,824	73.31
Hickory County, MO	1	9,544	10.48
Holt County, MO	1	4,403	22.71
Howard County, MO	5	10,001	50.00
Howell County, MO	27	40,117	67.30
Iron County, MO	1	10,125	9.88
Jackson County, MO	323	703,011	45.95
Jasper County, MO	49	121,328	40.39
Jefferson County, MO	34	225,081	15.11
Johnson County, MO	14	54,062	25.90
Knox County, MO	1	3,959	25.26
Laclede County, MO	15	35,723	41.99
Lafayette County, MO	9	32,708	27.52
Lawrence County, MO	19	38,355	49.54
Lewis County, MO	3	9,776	30.69
Lincoln County, MO	6	59,013	10.17
Linn County, MO	4	11,920	33.56
Livingston County, MO	10	15,227	65.67
Macon County, MO	5	15,117	33.08
Madison County, MO	3	12,088	24.82
Maries County, MO	0	8,697	0.00
Marion County, MO	16	28,530	56.08
McDonald County, MO	3	22,837	13.14
Mercer County, MO	1	3,617	27.65
Miller County, MO	7	25,619	27.32
Mississippi County, MO	4	13,180	30.35
Moniteau County, MO	2	16,132	12.40
Monroe County, MO	3	8,644	34.71
Montgomery County, MO	1	11,551	8.66
Morgan County, MO	4	20,627	19.39
New Madrid County, MO	1	17,076	5.86
Newton County, MO	6	58,236	10.30
Nodaway County, MO	8	22,092	36.21
Oregon County, MO	0	10,529	0.00
Osage County, MO	3	13,615	22.03

*

County	Physicians, Total General Practice (County Level File)	Population, All (County Level File)	Rate (per 100,000 population)
Ozark County, MO	2	9,174	21.80
Pemiscot County, MO	4	15,805	25.31
Perry County, MO	6	19,136	31.35
Pettis County, MO	13	42,339	30.70
Phelps County, MO	22	44,573	49.36
Pike County, MO	7	18,302	38.25
Platte County, MO	53	104,418	50.76
Polk County, MO	20	32,149	62.21
Pulaski County, MO	13	52,607	24.71
Putnam County, MO	2	4,696	42.59
Ralls County, MO	0	10,309	0.00
Randolph County, MO	6	24,748	24.24
Ray County, MO	7	23,018	30.41
Reynolds County, MO	2	6,270	31.90
Ripley County, MO	3	13,288	22.58
Saline County, MO	11	22,761	48.33
Schuylerville County, MO	3	4,660	64.38
Scotland County, MO	6	4,902	122.40
Scott County, MO	14	38,280	36.57
Shannon County, MO	0	8,166	0.00
Shelby County, MO	0	5,930	0.00
St. Charles County, MO	88	402,022	21.89
St. Clair County, MO	2	9,397	21.28
St. Francois County, MO	28	67,215	41.66
St. Louis City, MO	60	300,576	19.96
St. Louis County, MO	326	994,205	32.79
Ste. Genevieve County, MO	3	17,894	16.77
Stoddard County, MO	10	29,025	34.45
Stone County, MO	6	31,952	18.78
Sullivan County, MO	2	6,089	32.85
Taney County, MO	34	55,928	60.79
Texas County, MO	9	25,398	35.44
Vernon County, MO	6	20,563	29.18
Warren County, MO	4	35,649	11.22
Washington County, MO	7	24,730	28.31
Wayne County, MO	4	12,873	31.07
Webster County, MO	7	39,592	17.68
Worth County, MO	1	2,013	49.68
Wright County, MO	4	18,289	21.87

D.O. Internal Medicine by County

data.HRSA.gov

AMA Physician Masterfile 2018; Census County Pop. Estimates 2019

Selected Filters: 2019-2020 / Physicians, Internal Medicine (County Level File) / Population, All (County Level File)

County	Physicians, Internal Medicine (County Level File)	Population, All (County Level File)	Rate (per 100,000 population)
Adair County, MO	5	25,343	19.73
Andrew County, MO	0	17,712	0.00
Atchison County, MO	0	5,143	0.00
Audrain County, MO	4	25,388	15.76
Barry County, MO	1	35,789	2.79
Barton County, MO	1	11,754	8.51
Bates County, MO	0	16,172	0.00
Benton County, MO	0	19,443	0.00
Bollinger County, MO	1	12,133	8.24
Boone County, MO	122	180,463	67.60
Buchanan County, MO	20	87,364	22.89
Butler County, MO	20	42,478	47.08
Caldwell County, MO	1	9,020	11.09
Callaway County, MO	3	44,743	6.71
Camden County, MO	8	46,305	17.28
Cape Girardeau County, MO	27	78,871	34.23
Carroll County, MO	1	8,679	11.52
Carter County, MO	0	5,982	0.00
Cass County, MO	3	105,780	2.84
Cedar County, MO	0	14,349	0.00
Chariton County, MO	0	7,426	0.00
Christian County, MO	7	88,595	7.90
Clark County, MO	0	6,797	0.00
Clay County, MO	44	249,948	17.60
Clinton County, MO	2	20,387	9.81
Cole County, MO	8	76,745	10.42
Cooper County, MO	2	17,709	11.29
Crawford County, MO	0	23,920	0.00
Dade County, MO	0	7,561	0.00
Dallas County, MO	0	16,878	0.00
Daviess County, MO	1	8,278	12.08
DeKalb County, MO	0	12,547	0.00
Dent County, MO	3	15,573	19.26
Douglas County, MO	1	13,185	7.58
Dunklin County, MO	3	29,131	10.30

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County	Physicians, Internal Medicine (County Level File)	Population, All (County Level File)	Rate (per 100,000 population)
Franklin County, MO	20	103,967	19.24
Gasconade County, MO	3	14,706	20.40
Gentry County, MO	0	6,571	0.00
Greene County, MO	107	293,086	36.51
Grundy County, MO	1	9,850	10.15
Harrison County, MO	0	8,352	0.00
Henry County, MO	1	21,824	4.58
Hickory County, MO	0	9,544	0.00
Holt County, MO	0	4,403	0.00
Howard County, MO	0	10,001	0.00
Howell County, MO	11	40,117	27.42
Iron County, MO	0	10,125	0.00
Jackson County, MO	260	703,011	36.98
Jasper County, MO	43	121,328	35.44
Jefferson County, MO	16	225,081	7.11
Johnson County, MO	4	54,062	7.40
Knox County, MO	0	3,959	0.00
Laclede County, MO	2	35,723	5.60
Lafayette County, MO	0	32,708	0.00
Lawrence County, MO	3	38,355	7.82
Lewis County, MO	0	9,776	0.00
Lincoln County, MO	0	59,013	0.00
Linn County, MO	1	11,920	8.39
Livingston County, MO	2	15,227	13.13
Macon County, MO	0	15,117	0.00
Madison County, MO	0	12,088	0.00
Maries County, MO	0	8,697	0.00
Marion County, MO	8	28,530	28.04
McDonald County, MO	0	22,837	0.00
Mercer County, MO	0	3,617	0.00
Miller County, MO	0	25,619	0.00
Mississippi County, MO	1	13,180	7.59
Moniteau County, MO	0	16,132	0.00
Monroe County, MO	0	8,644	0.00
Montgomery County, MO	1	11,551	8.66
Morgan County, MO	0	20,627	0.00
New Madrid County, MO	1	17,076	5.86
Newton County, MO	1	58,236	1.72
Nodaway County, MO	2	22,092	9.05
Oregon County, MO	0	10,529	0.00
Osage County, MO	0	13,615	0.00

*

County	Physicians, Internal Medicine (County Level File)	Population, All (County Level File)	Rate (per 100,000 population)
Ozark County, MO	0	9,174	0.00
Pemiscot County, MO	2	15,805	12.65
Perry County, MO	4	19,136	20.90
Pettis County, MO	6	42,339	14.17
Phelps County, MO	11	44,573	24.68
Pike County, MO	0	18,302	0.00
Platte County, MO	21	104,418	20.11
Polk County, MO	2	32,149	6.22
Pulaski County, MO	6	52,607	11.41
Putnam County, MO	0	4,696	0.00
Ralls County, MO	2	10,309	19.40
Randolph County, MO	3	24,748	12.12
Ray County, MO	1	23,018	4.34
Reynolds County, MO	1	6,270	15.95
Ripley County, MO	1	13,288	7.53
Saline County, MO	2	22,761	8.79
Schuylerville County, MO	0	4,660	0.00
Scotland County, MO	0	4,902	0.00
Scott County, MO	7	38,280	18.29
Shannon County, MO	0	8,166	0.00
Shelby County, MO	0	5,930	0.00
St. Charles County, MO	57	402,022	14.18
St. Clair County, MO	1	9,397	10.64
St. Francois County, MO	14	67,215	20.83
St. Louis City, MO	294	300,576	97.81
St. Louis County, MO	814	994,205	81.87
Ste. Genevieve County, MO	3	17,894	16.77
Stoddard County, MO	4	29,025	13.78
Stone County, MO	3	31,952	9.39
Sullivan County, MO	0	6,089	0.00
Taney County, MO	8	55,928	14.30
Texas County, MO	2	25,398	7.87
Vernon County, MO	3	20,563	14.59
Warren County, MO	1	35,649	2.81
Washington County, MO	1	24,730	4.04
Wayne County, MO	0	12,873	0.00
Webster County, MO	2	39,592	5.05
Worth County, MO	0	2,013	0.00
Wright County, MO	0	18,289	0.00

M.D. & D.O. Pediatrics by County

data.HRSA.gov

AMA Physician Masterfile 2018; Census County Pop. Estimates 2019

Selected Filters: 2019-2020 / Physicians, Pediatrics (County Level File) / Population, All (County Level File)

County	Physicians, Pediatrics (County Level File)	Population, All (County Level File)	Rate (per 100,000 population)
Adair County, MO	5	25,343	19.73
Andrew County, MO	0	17,712	0.00
Atchison County, MO	0	5,143	0.00
Audrain County, MO	3	25,388	11.82
Barry County, MO	0	35,789	0.00
Barton County, MO	0	11,754	0.00
Bates County, MO	0	16,172	0.00
Benton County, MO	0	19,443	0.00
Bollinger County, MO	0	12,133	0.00
Boone County, MO	61	180,463	33.80
Buchanan County, MO	7	87,364	8.01
Butler County, MO	11	42,478	25.90
Caldwell County, MO	0	9,020	0.00
Callaway County, MO	0	44,743	0.00
Camden County, MO	2	46,305	4.32
Cape Girardeau County, MO	9	78,871	11.41
Carroll County, MO	0	8,679	0.00
Carter County, MO	0	5,982	0.00
Cass County, MO	3	105,780	2.84
Cedar County, MO	0	14,349	0.00
Chariton County, MO	0	7,426	0.00
Christian County, MO	11	88,595	12.42
Clark County, MO	0	6,797	0.00
Clay County, MO	50	249,948	20.00
Clinton County, MO	1	20,387	4.91
Cole County, MO	13	76,745	16.94
Cooper County, MO	0	17,709	0.00
Crawford County, MO	0	23,920	0.00
Dade County, MO	0	7,561	0.00
Dallas County, MO	0	16,878	0.00
Daviess County, MO	0	8,278	0.00
DeKalb County, MO	0	12,547	0.00
Dent County, MO	0	15,573	0.00
Douglas County, MO	0	13,185	0.00
Dunklin County, MO	1	29,131	3.43

*

County	Physicians, Pediatrics (County Level File)	Population, All (County Level File)	Rate (per 100,000 population)
Franklin County, MO	16	103,967	15.39
Gasconade County, MO	0	14,706	0.00
Gentry County, MO	0	6,571	0.00
Greene County, MO	41	293,086	13.99
Grundy County, MO	0	9,850	0.00
Harrison County, MO	0	8,352	0.00
Henry County, MO	1	21,824	4.58
Hickory County, MO	0	9,544	0.00
Holt County, MO	0	4,403	0.00
Howard County, MO	0	10,001	0.00
Howell County, MO	1	40,117	2.49
Iron County, MO	0	10,125	0.00
Jackson County, MO	238	703,011	33.85
Jasper County, MO	19	121,328	15.66
Jefferson County, MO	9	225,081	4.00
Johnson County, MO	5	54,062	9.25
Knox County, MO	0	3,959	0.00
Laclede County, MO	5	35,723	14.00
Lafayette County, MO	0	32,708	0.00
Lawrence County, MO	0	38,355	0.00
Lewis County, MO	0	9,776	0.00
Lincoln County, MO	1	59,013	1.69
Linn County, MO	0	11,920	0.00
Livingston County, MO	0	15,227	0.00
Macon County, MO	0	15,117	0.00
Madison County, MO	1	12,088	8.27
Maries County, MO	0	8,697	0.00
Marion County, MO	5	28,530	17.53
McDonald County, MO	0	22,837	0.00
Mercer County, MO	0	3,617	0.00
Miller County, MO	1	25,619	3.90
Mississippi County, MO	0	13,180	0.00
Moniteau County, MO	0	16,132	0.00
Monroe County, MO	1	8,644	11.57
Montgomery County, MO	0	11,551	0.00
Morgan County, MO	0	20,627	0.00
New Madrid County, MO	0	17,076	0.00
Newton County, MO	1	58,236	1.72
Nodaway County, MO	1	22,092	4.53
Oregon County, MO	0	10,529	0.00
Osage County, MO	0	13,615	0.00

*

County	Physicians, Pediatrics (County Level File)	Population, All (County Level File)	Rate (per 100,000 population)
Ozark County, MO	0	9,174	0.00
Pemiscot County, MO	0	15,805	0.00
Perry County, MO	0	19,136	0.00
Pettis County, MO	5	42,339	11.81
Phelps County, MO	9	44,573	20.19
Pike County, MO	0	18,302	0.00
Platte County, MO	19	104,418	18.20
Polk County, MO	4	32,149	12.44
Pulaski County, MO	2	52,607	3.80
Putnam County, MO	0	4,696	0.00
Ralls County, MO	0	10,309	0.00
Randolph County, MO	0	24,748	0.00
Ray County, MO	0	23,018	0.00
Reynolds County, MO	0	6,270	0.00
Ripley County, MO	0	13,288	0.00
Saline County, MO	0	22,761	0.00
Schuylerville County, MO	0	4,660	0.00
Scotland County, MO	0	4,902	0.00
Scott County, MO	2	38,280	5.22
Shannon County, MO	0	8,166	0.00
Shelby County, MO	0	5,930	0.00
St. Charles County, MO	51	402,022	12.69
St. Clair County, MO	0	9,397	0.00
St. Francois County, MO	5	67,215	7.44
St. Louis City, MO	210	300,576	69.87
St. Louis County, MO	363	994,205	36.51
Ste. Genevieve County, MO	2	17,894	11.18
Stoddard County, MO	1	29,025	3.45
Stone County, MO	2	31,952	6.26
Sullivan County, MO	0	6,089	0.00
Taney County, MO	3	55,928	5.36
Texas County, MO	0	25,398	0.00
Vernon County, MO	0	20,563	0.00
Warren County, MO	0	35,649	0.00
Washington County, MO	0	24,730	0.00
Wayne County, MO	0	12,873	0.00
Webster County, MO	0	39,592	0.00
Worth County, MO	0	2,013	0.00
Wright County, MO	0	18,289	0.00

M.D. & D.O. OB/GYN by County

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AMA Physician Masterfile 2018; Census County Pop. Estimates 2019

Selected Filters: 2019-2020 / Physicians, Obstetrics and Gynecology (County Level File) / Population, All (County Level File)

County	Physicians, Obstetrics and Gynecology (County Level File)	Population, All (County Level File)	Rate (per 100,000 population)
Adair County, MO	2	25,343	7.89
Andrew County, MO	0	17,712	0.00
Atchison County, MO	0	5,143	0.00
Audrain County, MO	3	25,388	11.82
Barry County, MO	0	35,789	0.00
Barton County, MO	1	11,754	8.51
Bates County, MO	0	16,172	0.00
Benton County, MO	1	19,443	5.14
Bollinger County, MO	0	12,133	0.00
Boone County, MO	48	180,463	26.60
Buchanan County, MO	8	87,364	9.16
Butler County, MO	7	42,478	16.48
Caldwell County, MO	0	9,020	0.00
Callaway County, MO	0	44,743	0.00
Camden County, MO	4	46,305	8.64
Cape Girardeau County, MO	11	78,871	13.95
Carroll County, MO	0	8,679	0.00
Carter County, MO	1	5,982	16.72
Cass County, MO	0	105,780	0.00
Cedar County, MO	1	14,349	6.97
Chariton County, MO	0	7,426	0.00
Christian County, MO	7	88,595	7.90
Clark County, MO	0	6,797	0.00
Clay County, MO	24	249,948	9.60
Clinton County, MO	2	20,387	9.81
Cole County, MO	13	76,745	16.94
Cooper County, MO	0	17,709	0.00
Crawford County, MO	0	23,920	0.00
Dade County, MO	0	7,561	0.00
Dallas County, MO	0	16,878	0.00
Daviess County, MO	0	8,278	0.00
DeKalb County, MO	0	12,547	0.00
Dent County, MO	0	15,573	0.00
Douglas County, MO	0	13,185	0.00

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County	Physicians, Obstetrics and Gynecology (County Level File)	Population, All (County Level File)	Rate (per 100,000 population)
Dunklin County, MO	0	29,131	0.00
Franklin County, MO	8	103,967	7.69
Gasconade County, MO	0	14,706	0.00
Gentry County, MO	0	6,571	0.00
Greene County, MO	38	293,086	12.97
Grundy County, MO	0	9,850	0.00
Harrison County, MO	0	8,352	0.00
Henry County, MO	1	21,824	4.58
Hickory County, MO	0	9,544	0.00
Holt County, MO	0	4,403	0.00
Howard County, MO	0	10,001	0.00
Howell County, MO	3	40,117	7.48
Iron County, MO	0	10,125	0.00
Jackson County, MO	92	703,011	13.09
Jasper County, MO	17	121,328	14.01
Jefferson County, MO	8	225,081	3.55
Johnson County, MO	3	54,062	5.55
Knox County, MO	0	3,959	0.00
Laclede County, MO	0	35,723	0.00
Lafayette County, MO	0	32,708	0.00
Lawrence County, MO	0	38,355	0.00
Lewis County, MO	0	9,776	0.00
Lincoln County, MO	0	59,013	0.00
Linn County, MO	0	11,920	0.00
Livingston County, MO	3	15,227	19.70
Macon County, MO	0	15,117	0.00
Madison County, MO	0	12,088	0.00
Maries County, MO	0	8,697	0.00
Marion County, MO	6	28,530	21.03
McDonald County, MO	0	22,837	0.00
Mercer County, MO	0	3,617	0.00
Miller County, MO	0	25,619	0.00
Mississippi County, MO	0	13,180	0.00
Moniteau County, MO	0	16,132	0.00
Monroe County, MO	0	8,644	0.00
Montgomery County, MO	0	11,551	0.00
Morgan County, MO	0	20,627	0.00
New Madrid County, MO	0	17,076	0.00
Newton County, MO	0	58,236	0.00
Nodaway County, MO	3	22,092	13.58
Oregon County, MO	0	10,529	0.00

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County	Physicians, Obstetrics and Gynecology (County Level File)	Population, All (County Level File)	Rate (per 100,000 population)
Osage County, MO	0	13,615	0.00
Ozark County, MO	0	9,174	0.00
Pemiscot County, MO	1	15,805	6.33
Perry County, MO	2	19,136	10.45
Pettis County, MO	1	42,339	2.36
Phelps County, MO	5	44,573	11.22
Pike County, MO	0	18,302	0.00
Platte County, MO	10	104,418	9.58
Polk County, MO	1	32,149	3.11
Pulaski County, MO	1	52,607	1.90
Putnam County, MO	0	4,696	0.00
Ralls County, MO	0	10,309	0.00
Randolph County, MO	2	24,748	8.08
Ray County, MO	0	23,018	0.00
Reynolds County, MO	0	6,270	0.00
Ripley County, MO	0	13,288	0.00
Saline County, MO	3	22,761	13.18
Schuylerville, MO	0	4,660	0.00
Scotland County, MO	1	4,902	20.40
Scott County, MO	3	38,280	7.84
Shannon County, MO	0	8,166	0.00
Shelby County, MO	0	5,930	0.00
St. Charles County, MO	23	402,022	5.72
St. Clair County, MO	0	9,397	0.00
St. Francois County, MO	0	67,215	0.00
St. Louis City, MO	83	300,576	27.61
St. Louis County, MO	289	994,205	29.07
Ste. Genevieve County, MO	2	17,894	11.18
Stoddard County, MO	0	29,025	0.00
Stone County, MO	0	31,952	0.00
Sullivan County, MO	0	6,089	0.00
Taney County, MO	2	55,928	3.58
Texas County, MO	0	25,398	0.00
Vernon County, MO	0	20,563	0.00
Warren County, MO	0	35,649	0.00
Washington County, MO	0	24,730	0.00
Wayne County, MO	0	12,873	0.00
Webster County, MO	1	39,592	2.53
Worth County, MO	0	2,013	0.00
Wright County, MO	0	18,289	0.00

M.D. & D.O. Psychiatry by County

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AMA Physician Masterfile 2018; Census County Pop. Estimates 2019

Selected Filters: 2019-2020 / Physicians, Psychiatry (County Level File) / Population, All (County Level File)

County	Physicians, Psychiatry (County Level File)	Population, All (County Level File)	Rate (per 100,000 population)
Adair County, MO	0	25,343	0.00
Andrew County, MO	0	17,712	0.00
Atchison County, MO	0	5,143	0.00
Audrain County, MO	0	25,388	0.00
Barry County, MO	0	35,789	0.00
Barton County, MO	0	11,754	0.00
Bates County, MO	0	16,172	0.00
Benton County, MO	0	19,443	0.00
Bollinger County, MO	0	12,133	0.00
Boone County, MO	78	180,463	43.22
Buchanan County, MO	7	87,364	8.01
Butler County, MO	4	42,478	9.42
Caldwell County, MO	0	9,020	0.00
Callaway County, MO	8	44,743	17.88
Camden County, MO	1	46,305	2.16
Cape Girardeau County, MO	5	78,871	6.34
Carroll County, MO	0	8,679	0.00
Carter County, MO	0	5,982	0.00
Cass County, MO	2	105,780	1.89
Cedar County, MO	0	14,349	0.00
Chariton County, MO	0	7,426	0.00
Christian County, MO	2	88,595	2.26
Clark County, MO	0	6,797	0.00
Clay County, MO	13	249,948	5.20
Clinton County, MO	0	20,387	0.00
Cole County, MO	8	76,745	10.42
Cooper County, MO	0	17,709	0.00
Crawford County, MO	1	23,920	4.18
Dade County, MO	0	7,561	0.00
Dallas County, MO	0	16,878	0.00
Daviess County, MO	0	8,278	0.00
DeKalb County, MO	0	12,547	0.00
Dent County, MO	0	15,573	0.00
Douglas County, MO	0	13,185	0.00
Dunklin County, MO	0	29,131	0.00

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County	Physicians, Psychiatry (County Level File)	Population, All (County Level File)	Rate (per 100,000 population)
Franklin County, MO	3	103,967	2.89
Gasconade County, MO	0	14,706	0.00
Gentry County, MO	0	6,571	0.00
Greene County, MO	30	293,086	10.24
Grundy County, MO	1	9,850	10.15
Harrison County, MO	0	8,352	0.00
Henry County, MO	1	21,824	4.58
Hickory County, MO	0	9,544	0.00
Holt County, MO	0	4,403	0.00
Howard County, MO	0	10,001	0.00
Howell County, MO	0	40,117	0.00
Iron County, MO	0	10,125	0.00
Jackson County, MO	84	703,011	11.95
Jasper County, MO	23	121,328	18.96
Jefferson County, MO	3	225,081	1.33
Johnson County, MO	3	54,062	5.55
Knox County, MO	0	3,959	0.00
Laclede County, MO	0	35,723	0.00
Lafayette County, MO	2	32,708	6.11
Lawrence County, MO	2	38,355	5.21
Lewis County, MO	0	9,776	0.00
Lincoln County, MO	0	59,013	0.00
Linn County, MO	0	11,920	0.00
Livingston County, MO	1	15,227	6.57
Macon County, MO	0	15,117	0.00
Madison County, MO	0	12,088	0.00
Maries County, MO	1	8,697	11.50
Marion County, MO	1	28,530	3.51
McDonald County, MO	0	22,837	0.00
Mercer County, MO	0	3,617	0.00
Miller County, MO	0	25,619	0.00
Mississippi County, MO	0	13,180	0.00
Moniteau County, MO	0	16,132	0.00
Monroe County, MO	0	8,644	0.00
Montgomery County, MO	0	11,551	0.00
Morgan County, MO	0	20,627	0.00
New Madrid County, MO	0	17,076	0.00
Newton County, MO	0	58,236	0.00
Nodaway County, MO	1	22,092	4.53
Oregon County, MO	1	10,529	9.50
Osage County, MO	0	13,615	0.00

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County	Physicians, Psychiatry (County Level File)	Population, All (County Level File)	Rate (per 100,000 population)
Ozark County, MO	0	9,174	0.00
Pemiscot County, MO	2	15,805	12.65
Perry County, MO	0	19,136	0.00
Pettis County, MO	2	42,339	4.72
Phelps County, MO	2	44,573	4.49
Pike County, MO	0	18,302	0.00
Platte County, MO	22	104,418	21.07
Polk County, MO	1	32,149	3.11
Pulaski County, MO	1	52,607	1.90
Putnam County, MO	0	4,696	0.00
Ralls County, MO	0	10,309	0.00
Randolph County, MO	0	24,748	0.00
Ray County, MO	0	23,018	0.00
Reynolds County, MO	0	6,270	0.00
Ripley County, MO	0	13,288	0.00
Saline County, MO	0	22,761	0.00
Schuylerville County, MO	0	4,660	0.00
Scotland County, MO	0	4,902	0.00
Scott County, MO	2	38,280	5.22
Shannon County, MO	0	8,166	0.00
Shelby County, MO	0	5,930	0.00
St. Charles County, MO	14	402,022	3.48
St. Clair County, MO	0	9,397	0.00
St. Francois County, MO	6	67,215	8.93
St. Louis City, MO	140	300,576	46.58
St. Louis County, MO	206	994,205	20.72
Ste. Genevieve County, MO	0	17,894	0.00
Stoddard County, MO	0	29,025	0.00
Stone County, MO	0	31,952	0.00
Sullivan County, MO	0	6,089	0.00
Taney County, MO	2	55,928	3.58
Texas County, MO	0	25,398	0.00
Vernon County, MO	3	20,563	14.59
Warren County, MO	0	35,649	0.00
Washington County, MO	0	24,730	0.00
Wayne County, MO	0	12,873	0.00
Webster County, MO	0	39,592	0.00
Worth County, MO	0	2,013	0.00
Wright County, MO	0	18,289	0.00

Dentists by County

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AMA Physician Masterfile 2018; Census County Pop. Estimates 2019

Selected Filters: 2019-2020 / Dentist, Total Active Dentist (County Level File) / Population, All (County Level File)

County	Dentist, Total Active Dentist (County Level File)	Population, All (County Level File)	Rate (per 100,000 population)
Adair County, MO	14	25,343	55.24
Andrew County, MO	2	17,712	11.29
Atchison County, MO	2	5,143	38.89
Audrain County, MO	5	25,388	19.69
Barry County, MO	10	35,789	27.94
Barton County, MO	2	11,754	17.02
Bates County, MO	6	16,172	37.10
Benton County, MO	4	19,443	20.57
Bollinger County, MO	2	12,133	16.48
Boone County, MO	96	180,463	53.20
Buchanan County, MO	49	87,364	56.09
Butler County, MO	20	42,478	47.08
Caldwell County, MO	2	9,020	22.17
Callaway County, MO	8	44,743	17.88
Camden County, MO	12	46,305	25.92
Cape Girardeau County, MO	51	78,871	64.66
Carroll County, MO	3	8,679	34.57
Carter County, MO	1	5,982	16.72
Cass County, MO	37	105,780	34.98
Cedar County, MO	3	14,349	20.91
Chariton County, MO	2	7,426	26.93
Christian County, MO	23	88,595	25.96
Clark County, MO	3	6,797	44.14
Clay County, MO	138	249,948	55.21
Clinton County, MO	6	20,387	29.43
Cole County, MO	44	76,745	57.33
Cooper County, MO	6	17,709	33.88
Crawford County, MO	2	23,920	8.36
Dade County, MO	1	7,561	13.23
Dallas County, MO	4	16,878	23.70
Daviess County, MO	4	8,278	48.32
DeKalb County, MO	2	12,547	15.94
Dent County, MO	3	15,573	19.26
Douglas County, MO	5	13,185	37.92
Dunklin County, MO	8	29,131	27.46

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County	Dentist, Total Active Dentist (County Level File)	Population, All (County Level File)	Rate (per 100,000 population)
Franklin County, MO	38	103,967	36.55
Gasconade County, MO	2	14,706	13.60
Gentry County, MO	2	6,571	30.44
Greene County, MO	189	293,086	64.49
Grundy County, MO	5	9,850	50.76
Harrison County, MO	3	8,352	35.92
Henry County, MO	9	21,824	41.24
Hickory County, MO	1	9,544	10.48
Holt County, MO	0	4,403	0.00
Howard County, MO	2	10,001	20.00
Howell County, MO	13	40,117	32.41
Iron County, MO	3	10,125	29.63
Jackson County, MO	493	703,011	70.13
Jasper County, MO	62	121,328	51.10
Jefferson County, MO	66	225,081	29.32
Johnson County, MO	18	54,062	33.30
Knox County, MO	0	3,959	0.00
Laclede County, MO	9	35,723	25.19
Lafayette County, MO	12	32,708	36.69
Lawrence County, MO	9	38,355	23.47
Lewis County, MO	1	9,776	10.23
Lincoln County, MO	4	59,013	6.78
Linn County, MO	3	11,920	25.17
Livingston County, MO	7	15,227	45.97
Macon County, MO	5	15,117	33.08
Madison County, MO	2	12,088	16.55
Maries County, MO	3	8,697	34.49
Marion County, MO	18	28,530	63.09
McDonald County, MO	2	22,837	8.76
Mercer County, MO	0	3,617	0.00
Miller County, MO	3	25,619	11.71
Mississippi County, MO	1	13,180	7.59
Moniteau County, MO	2	16,132	12.40
Monroe County, MO	1	8,644	11.57
Montgomery County, MO	1	11,551	8.66
Morgan County, MO	5	20,627	24.24
New Madrid County, MO	2	17,076	11.71
Newton County, MO	12	58,236	20.61
Nodaway County, MO	8	22,092	36.21
Oregon County, MO	0	10,529	0.00
Osage County, MO	4	13,615	29.38

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County	Dentist, Total Active Dentist (County Level File)	Population, All (County Level File)	Rate (per 100,000 population)
Ozark County, MO	1	9,174	10.90
Pemiscot County, MO	2	15,805	12.65
Perry County, MO	9	19,136	47.03
Pettis County, MO	16	42,339	37.79
Phelps County, MO	23	44,573	51.60
Pike County, MO	4	18,302	21.86
Platte County, MO	64	104,418	61.29
Polk County, MO	9	32,149	27.99
Pulaski County, MO	40	52,607	76.04
Putnam County, MO	2	4,696	42.59
Ralls County, MO	0	10,309	0.00
Randolph County, MO	7	24,748	28.29
Ray County, MO	3	23,018	13.03
Reynolds County, MO	3	6,270	47.85
Ripley County, MO	0	13,288	0.00
Saline County, MO	7	22,761	30.75
Schuylerville County, MO	1	4,660	21.46
Scotland County, MO	1	4,902	20.40
Scott County, MO	12	38,280	31.35
Shannon County, MO	0	8,166	0.00
Shelby County, MO	1	5,930	16.86
St. Charles County, MO	198	402,022	49.25
St. Clair County, MO	2	9,397	21.28
St. Francois County, MO	20	67,215	29.76
St. Louis City, MO	187	300,576	62.21
St. Louis County, MO	746	994,205	75.03
Ste. Genevieve County, MO	2	17,894	11.18
Stoddard County, MO	5	29,025	17.23
Stone County, MO	4	31,952	12.52
Sullivan County, MO	0	6,089	0.00
Taney County, MO	13	55,928	23.24
Texas County, MO	3	25,398	11.81
Vernon County, MO	4	20,563	19.45
Warren County, MO	10	35,649	28.05
Washington County, MO	7	24,730	28.31
Wayne County, MO	0	12,873	0.00
Webster County, MO	12	39,592	30.31
Worth County, MO	0	2,013	0.00
Wright County, MO	7	18,289	38.27

Appendix G: Endnotes/References

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